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## SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Came Thompson Examiner #: 7244 Date: 10/26/05  
Art Unit: 1774 Phone Number 301-511-2721 Serial Number: 101718,025  
Mail Box and Bldg/Room Location: 10D28 Results Format Preferred (circle): PAPER DISK E-MAIL

*Reminder*  
If more than one search is submitted, please prioritize searches in order of need.

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Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Organic Electroluminescent Element + display elements

Inventors (please provide full names): Tomohiro Oshiyama; Hiroshi Kita; Takatoshi Yamada; Yoshiyuki Suzuki; Motoi Kinoshita; Noriko Ueda

Earliest Priority Filing Date: 11/26/02

\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

*Please do a search on claims 1-51*

*Thanks*

SCIENTIFIC REFERENCE BR  
Sci & Tech Inf. Ctr.

NOV 2 REC'D

Pat. & T.M. Office

*(Subject matter in claims 22 and 29 appears novel.)*

### STAFF USE ONLY

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Searcher: <u>Est</u>	NA Sequence (#) _____	STN _____
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Date Searcher Picked Up: _____	Bibliographic _____	Dr. Link _____
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Searcher Prep & Review Time: _____	Fulltext _____	Sequence Systems _____
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10/718, 025

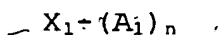
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What is claimed is:

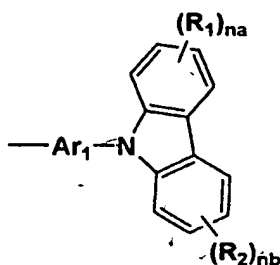
1. An organic electroluminescent element comprising an anode, a cathode and a component layer including a light emission layer, the component layer being provided between the anode and the cathode, wherein the component layer contains a compound represented by formula 1,

Formula 1



wherein  $A_1$  represents a group represented by formula 2, provided that plural  $A_1$  may be the same or different,

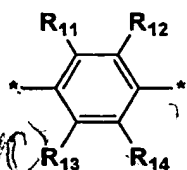
Formula 2



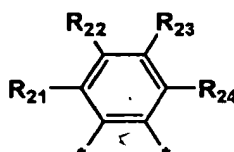
wherein  $Ar_1$  represents a divalent aromatic hydrocarbon or aromatic heterocyclic group;  $R_1$  and  $R_2$  independently represent a hydrogen atom, a substituted or unsubstituted alkyl group, a substituted or unsubstituted cycloalkyl group, a substituted or unsubstituted aralkyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted alkoxy group, a substituted or unsubstituted aryloxy group, a

cyano group, a hydroxyl group, a substituted or unsubstituted alkenyl group, or a halogen atom;  $n_a$  and  $n_b$  independently represent an integer of from 1 to 4;  $n$  represents an integer of from 2 to 4; and  $X_1$  represents a group represented by formula (a), (b), (c), (d), (e), (f), (g), (h), (i), (j), or (k),

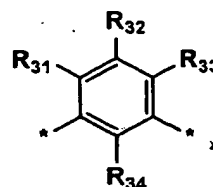
formula (a)



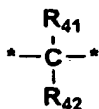
formula (b)



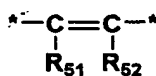
formula (c)



formula (d)



formula (e)



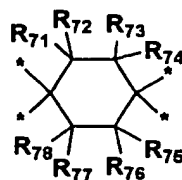
formula (f)



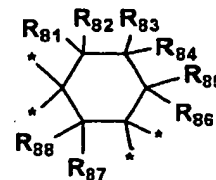
formula (g)



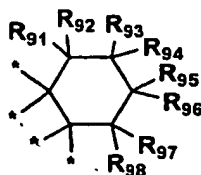
formula (h)



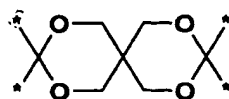
formula (i)



formula (j)



formula (k)



wherein  $R_{11}$  through  $R_{14}$ ,  $R_{21}$  through  $R_{24}$ , and  $R_{31}$  through  $R_{34}$  independently represent a hydrogen atom, a substituted or unsubstituted alkyl group, a substituted or unsubstituted cycloalkyl group, a substituted or unsubstituted aralkyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted alkoxy group, a substituted or unsubstituted aryloxy group, a cyano group, a hydroxyl group, a substituted or unsubstituted alkenyl group, or a halogen atom, provided that  $R_{11}$  through  $R_{14}$  are not simultaneously hydrogen atoms,  $R_{21}$  through  $R_{24}$  are not simultaneously hydrogen atoms,  $R_{31}$  through  $R_{34}$  are not simultaneously hydrogen atoms, and  $R_{11}$  and  $R_{12}$ , and  $R_{13}$  and  $R_{14}$  may combine with each other, respectively, to form a ring, but does not simultaneously combine with each other;  $R_{41}$  and  $R_{42}$  independently represent an alkyl group, provided that the total carbon atom number of the alkyl group is from 3 to 9;  $R_{51}$  and  $R_{52}$  independently represent a substituted or unsubstituted alkyl group, a substituted or unsubstituted cycloalkyl group, a substituted or unsubstituted aralkyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted alkoxy group, a substituted or unsubstituted aryloxy group, a cyano group, a hydroxyl group, a substituted or unsubstituted alkenyl group, or a halogen



atom; R<sub>61</sub> represents an alkyl group; Xa represents a divalent 6- or 7-membered monocyclic heterocyclic ring which is unsubstituted or alkyl-substituted; R<sub>71</sub> through R<sub>78</sub> independently represent a hydrogen atom, an alkyl group, or an alkoxy group; R<sub>81</sub> through R<sub>88</sub> independently represent a hydrogen atom, an alkyl group, or an alkoxy group; R<sub>91</sub> through R<sub>98</sub> independently represent a hydrogen atom, an alkyl group, or an alkoxy group; and "\*" represents a linkage site.

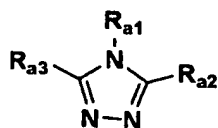
2. The organic electroluminescent element of claim 1, wherein a hole blocking layer is provided between the light emission layer and the cathode.

3. The organic electroluminescent element of claim 2, wherein the hole blocking layer is comprised of at least one selected from the group consisting of a styryl compound, a triazole derivative, a phenanthroline derivative, an oxadiazole derivative and a boron derivative.

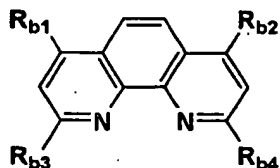
4. The organic electroluminescent element of claim 2, wherein the hole blocking layer is comprised of at least one selected from the group consisting of compounds represented by formula 5, 6, 7 or 8,

*monocyclic  
heterocyclic*

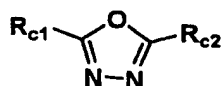
Formula 5



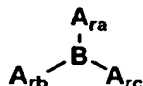
Formula 6



Formula 7



Formula 8



wherein  $R_{a1}$  through  $R_{a3}$ ,  $R_{b1}$  through  $R_{b4}$ , and  $R_{c1}$  and  $R_{c2}$  independently represent an alkyl group, an aryl group or a heterocyclic group; and  $A_{ra}$  through  $A_{rc}$  independently represent an aryl group or a heterocyclic group.

5. The organic electroluminescent element of claim 1, wherein the light emission layer contains the compound represented by formula 1 above.

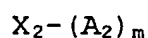
6. The organic electroluminescent element of claim 1, wherein the organic electroluminescent element contains a phosphorescent compound.

7. The organic electroluminescent element of claim 6, wherein the phosphorescent compound is an osmium complex, an iridium complex or a platinum complex.

8. An organic electroluminescent element comprising an anode, a cathode and a component layer including a light

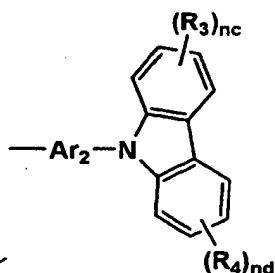
emission layer, the component layer being provided between the anode and the cathode, wherein the component layer contains a compound represented by formula 3,

Formula 3



wherein  $A_2$  represents a group represented by formula 4, provided that plural  $A_2$  may be the same or different,

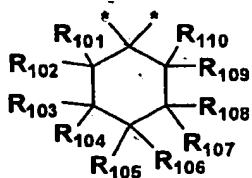
Formula 4



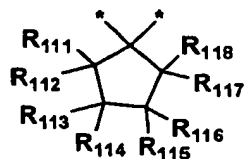
wherein  $Ar_2$  represents a divalent aromatic hydrocarbon or aromatic heterocyclic group;  $R_3$  and  $R_4$  independently represent a hydrogen atom, a substituted or unsubstituted alkyl group, a substituted or unsubstituted cycloalkyl group, a substituted or unsubstituted aralkyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted alkoxy group, a substituted or unsubstituted aryloxy group, a cyano group, a hydroxyl group, a substituted or unsubstituted alkenyl group, or a halogen atom;  $nc$  and  $nd$  independently represent an integer of from 1 to 4;  $m$  represents an integer

of from 2 to 4; and  $X_2$  represents a group represented by formula (l), (m), (n), or (o),

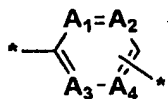
Formula (l)



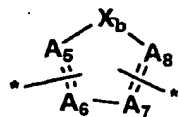
Formula (m)



Formula (n)



Formula (o)



wherein  $R_{101}$  through  $R_{110}$  independently represent a hydrogen atom, an alkyl group, or an alkoxy group, provided that  $R_{101}$  through  $R_{110}$  does not simultaneously hydrogen atoms; and any two of  $R_{101}$  through  $R_{110}$  do not combine with each other to form a ring;  $R_{111}$  through  $R_{118}$  independently represent a hydrogen atom, an alkyl group, or an alkoxy group;  $A_1$ ,  $A_2$ ,  $A_3$ , and  $A_4$

independently represent  $-C(R_{k1})=$  or  $-N=$ , in which  $R_{k1}$  represents a hydrogen atom or an alkyl group, provided that at least one of  $A_1$ ,  $A_2$ ,  $A_3$ , and  $A_4$  is  $-N=$ ;  $A_5$ ,  $A_6$ ,  $A_7$ , and  $A_8$  independently represent  $-C(R_{k2})=$  or  $-N=$ ;  $X_b$  represents  $-N(R_{k3})=$  or  $-Si(R_{k4})(R_{k5})-$ , which  $R_{k2}$ ,  $R_{k3}$ ,  $R_{k4}$ , and  $R_{k5}$  independently represent a hydrogen atom, a substituted or unsubstituted alkyl group, a substituted or unsubstituted cycloalkyl group, a substituted or unsubstituted aralkyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted alkoxy group, a substituted or unsubstituted aryloxy group, a cyano group, a hydroxyl group, a substituted or unsubstituted alkenyl group, or a halogen atom; and "\*" represents a linkage site.

9. The organic electroluminescent element of claim 8, wherein a hole blocking layer is provided between the light emission layer and the cathode.

10. The organic electroluminescent element of claim 9, wherein the hole blocking layer is comprised of at least one selected from the group consisting of a styryl compound, a triazole derivative, a phenanthroline derivative, an oxadiazole derivative and a boron derivative.

11. The organic electroluminescent element of claim 9, wherein the hole blocking layer is comprised of at least one

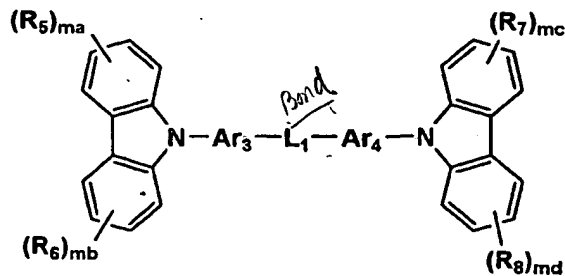
selected from the group consisting of compounds represented by formula 5, 6, 7 or 8 above.

12. The organic electroluminescent element of claim 8, wherein the light emission layer contains the compound represented by formula 3 above.

13. The organic electroluminescent element of claim 8, wherein the organic electroluminescent element contains a phosphorescent compound.

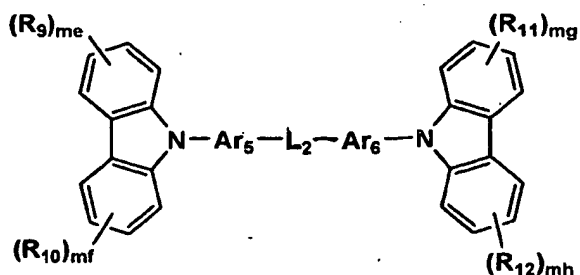
14. The organic electroluminescent element of claim 13, wherein the phosphorescent compound is an osmium complex, an iridium complex or a platinum complex.

15. An organic electroluminescent element comprising an anode, a cathode and a component layer including a light emission layer, the component layer being provided between the anode and the cathode, wherein the component layer contains a compound represented by formula H1, H2, H3 or H4,  
Formula H1



wherein  $L_1$  represents a straight-chained alkylene group having an aromatic ring;  $Ar_3$  and  $Ar_4$  independently represent a divalent aromatic hydrocarbon group or a divalent aromatic heterocyclic group;  $R_5$ ,  $R_6$ ,  $R_7$ , and  $R_8$  independently represent a hydrogen atom, a substituted or unsubstituted alkyl group, a substituted or unsubstituted cycloalkyl group, a substituted or unsubstituted aralkyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted alkoxy group, a substituted or unsubstituted aryloxy group, a cyano group, a hydroxyl group, a substituted or unsubstituted alkenyl group, or a halogen atom; and  $ma$ ,  $mb$ ,  $mc$ , and  $md$  independently represent an integer of from 1 to 4,

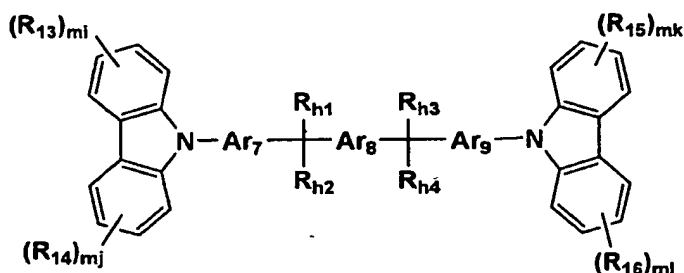
Formula H2



wherein  $L_2$  represents an alkylene group having at least one fluorine atom;  $Ar_5$  and  $Ar_6$  independently represent a divalent aromatic hydrocarbon group or a divalent aromatic heterocyclic group;  $R_9$ ,  $R_{10}$ ,  $R_{11}$ , and  $R_{12}$  independently represent a hydrogen atom, a substituted or unsubstituted

alkyl group, a substituted or unsubstituted cycloalkyl group, a substituted or unsubstituted aralkyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted alkoxy group, a substituted or unsubstituted aryloxy group, a cyano group, a hydroxyl group, a substituted or unsubstituted alkenyl group, or a halogen atom; and me, mf, mg, and mh independently represent an integer of from 1 to 4.

Formula H3

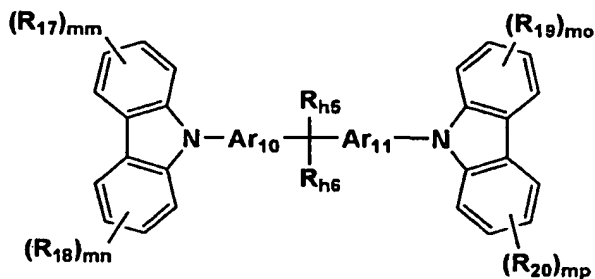


wherein  $Ar_7$ ,  $Ar_8$  and  $Ar_9$  independently represent a divalent aromatic hydrocarbon group or a divalent aromatic heterocyclic group;  $R_{h1}$ ,  $R_{h2}$ ,  $R_{h3}$ , and  $R_{h4}$  independently represent an alkyl group, a cycloalkyl group, an aralkyl group, an alkoxy group or a halogen atom;  $R_{13}$ ,  $R_{14}$ ,  $R_{15}$ , and  $R_{16}$  independently represent a hydrogen atom, a substituted or unsubstituted alkyl group, a substituted or unsubstituted cycloalkyl group, a substituted or unsubstituted aralkyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted alkoxy group, a substituted or



unsubstituted aryloxy group, a cyano group, a hydroxyl group, a substituted or unsubstituted alkenyl group, or a halogen atom; and  $m_i$ ,  $m_j$ ,  $m_k$ , and  $m_l$  independently represent an integer of from 1 to 4,

Formula H4



wherein  $Ar_{10}$  and  $Ar_{11}$  independently represent a divalent aromatic hydrocarbon group or a divalent aromatic heterocyclic group;  $R_{h5}$  and  $R_{h6}$  independently represent a substituted or unsubstituted alkyl group, a substituted or unsubstituted cycloalkyl group, a substituted or unsubstituted aralkyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted alkoxy group, a substituted or unsubstituted aryloxy group, a cyano group, a hydroxyl group, a substituted or unsubstituted alkenyl group, a halogen atom, or  $-[C(R_{01})(R_{02})]_pCF_3$ , in which  $R_{01}$  and  $R_{02}$  independently represent a hydrogen atom or a fluorine atom, and  $p$  represents an integer of not less than 0, provided that at least one of  $R_{h5}$  and  $R_{h6}$  is  $-[C(R_{01})(R_{02})]_pCF_3$ ;  $R_{17}$ ,  $R_{18}$ ,  $R_{19}$ ,

and  $R_{20}$  independently represent a hydrogen atom, a substituted or unsubstituted alkyl group, a substituted or unsubstituted cycloalkyl group, a substituted or unsubstituted aralkyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted alkoxy group, a substituted or unsubstituted aryloxy group, a cyano group, a hydroxyl group, a substituted or unsubstituted alkenyl group, or a halogen atom; and  $m$ ,  $n$ ,  $o$ , and  $p$  independently represent an integer of from 1 to 4.

16. The organic electroluminescent element of claim 15, wherein a hole blocking layer is provided between the light emission layer and the cathode.

17. The organic electroluminescent element of claim 16, wherein the hole blocking layer is comprised of at least one selected from the group consisting of a styryl compound, a triazole derivative, a phenanthroline derivative, an oxadiazole derivative and a boron derivative.

18. The organic electroluminescent element of claim 16, wherein the hole blocking layer is comprised of at least one selected from the group consisting of compounds represented by formula 5, 6, 7 or 8 above.

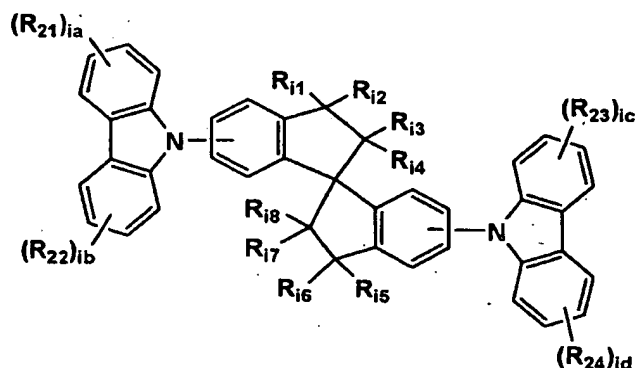
19. The organic electroluminescent element of claim 15, wherein the light emission layer contains the compound represented by formula H1, H2, H3, or H4 above.

20. The organic electroluminescent element of claim 15, wherein the organic electroluminescent element contains a phosphorescent compound.

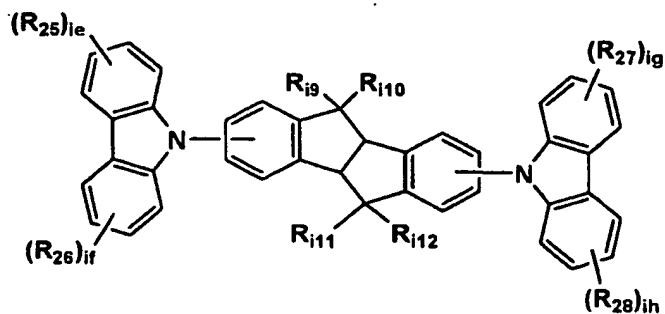
21. The organic electroluminescent element of claim 20, wherein the phosphorescent compound is an osmium complex, an iridium complex or a platinum complex.

22. An organic electroluminescent comprising an anode, a cathode and a component layer including a light emission layer, the component layer being provided between the anode and the cathode, wherein the component layer contains a compound represented by formula I1, I2 or I3,

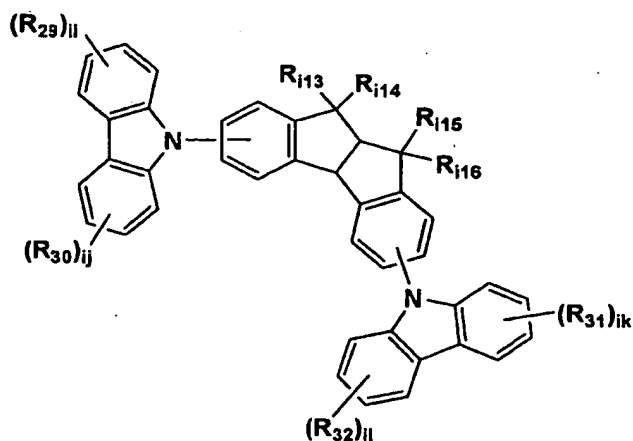
Formula I1



Formula I2



Formula I3



wherein  $R_{11}$ ,  $R_{12}$ ,  $R_{13}$ ,  $R_{14}$ ,  $R_{15}$ ,  $R_{16}$ ,  $R_{17}$ ,  $R_{18}$ ,  $R_{19}$ ,  $R_{110}$ ,  $R_{111}$ ,  $R_{112}$ ,  $R_{113}$ ,  $R_{114}$ ,  $R_{115}$ , and  $R_{116}$  independently represent a hydrogen atom, an alkyl group, a cycloalkyl group, an aralkyl group, an alkoxy group or a halogen atom;  $R_{21}$ ,  $R_{22}$ ,  $R_{23}$ ,  $R_{24}$ ,  $R_{25}$ ,  $R_{26}$ ,  $R_{27}$ ,  $R_{28}$ ,  $R_{29}$ ,  $R_{30}$ ,  $R_{31}$ , and  $R_{32}$  independently represent a hydrogen atom, a substituted or unsubstituted alkyl group, a substituted or unsubstituted cycloalkyl group, a substituted or unsubstituted aralkyl group, a substituted or

unsubstituted aryl group, a substituted or unsubstituted alkoxy group, a substituted or unsubstituted aryloxy group, a cyano group, a hydroxyl group, a substituted or unsubstituted alkenyl group, or a halogen atom; and ia, ib, ic, id, ie, if, ig, ih, ii, ij, ik, and io independently represent an integer of from 1 to 4.

23. The organic electroluminescent element of claim 22, wherein a hole blocking layer is provided between the light emission layer and the cathode.

24. The organic electroluminescent element of claim 23, wherein the hole blocking layer is comprised of at least one selected from the group consisting of a styryl compound, a triazole derivative, a phenanthroline derivative, an oxadiazole derivative and a boron derivative.

25. The organic electroluminescent element of claim 23, wherein the hole blocking layer is comprised of at least one selected from the group consisting of compounds represented by formula 5, 6, 7 or 8 above.

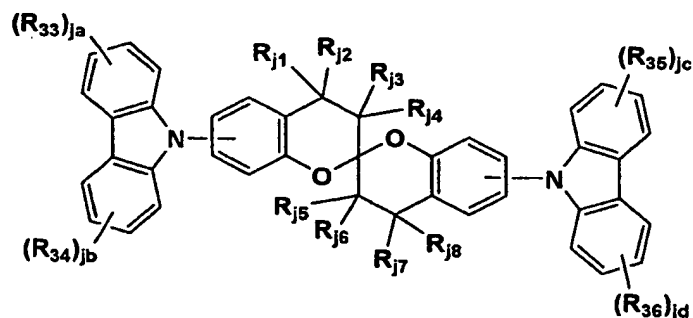
26. The organic electroluminescent element of claim 22, wherein the light emission layer contains the compound represented by formula I1, I2 or I3 above.

27. The organic electroluminescent element of claim 22, wherein the organic electroluminescent element contains a phosphorescent compound.

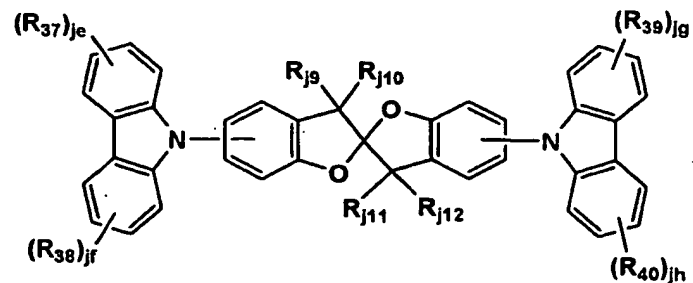
28. The organic electroluminescent element of claim 27, wherein the phosphorescent compound is an osmium complex, an iridium complex or a platinum complex.

29. An organic electroluminescent comprising an anode, a cathode and a component layer including a light emission layer, the component layer being provided between the anode and the cathode, wherein the component layer contains a compound represented by formula J1 or J2,

Formula J1



Formula J2



wherein  $R_{j1}$ ,  $R_{j2}$ ,  $R_{j3}$ ,  $R_{j4}$ ,  $R_{j5}$ ,  $R_{j6}$ ,  $R_{j7}$ ,  $R_{j8}$ ,  $R_{j9}$ ,  $R_{j10}$ ,  $R_{j11}$ , and  $R_{j12}$  independently represent a hydrogen atom, an alkyl group, a cycloalkyl group, an aralkyl group, an alkoxy group or a halogen atom;  $R_{33}$ ,  $R_{34}$ ,  $R_{35}$ ,  $R_{36}$ ,  $R_{37}$ ,  $R_{38}$ ,  $R_{39}$ , and  $R_{40}$  independently represent a hydrogen atom, a substituted or unsubstituted alkyl group, a substituted or unsubstituted cycloalkyl group, a substituted or unsubstituted aralkyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted alkoxy group, a substituted or unsubstituted aryloxy group, a cyano group, a hydroxyl group, a substituted or unsubstituted alkenyl group, or a halogen atom; and  $j_a$ ,  $j_b$ ,  $j_c$ ,  $j_d$ ,  $i_e$ ,  $j_f$ ,  $j_g$ , and  $j_h$  independently represent an integer of from 1 to 4.

30. The organic electroluminescent element of claim 29, wherein a hole blocking layer is provided between the light emission layer and the cathode.

31. The organic electroluminescent element of claim 30, wherein the hole blocking layer is comprised of at least one selected from the group consisting of a styryl compound, a triazole derivative, a phenanthroline derivative, an oxadiazole derivative and a boron derivative.

32. The organic electroluminescent element of claim 30, wherein the hole blocking layer is comprised of at least one

selected from the group consisting of compounds represented by formula 5, 6, 7 or 8 above.

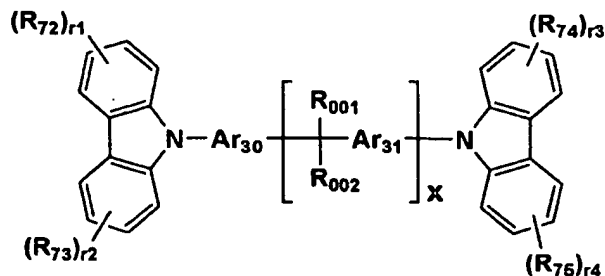
33. The organic electroluminescent element of claim 29, wherein the light emission layer contains the compound represented by formula J1 or J2 above.

34. The organic electroluminescent element of claim 29, wherein the organic electroluminescent element contains a phosphorescent compound.

35. The organic electroluminescent element of claim 34, wherein the phosphorescent compound is an osmium complex, an iridium complex or a platinum complex.

36. An organic electroluminescent element comprising an anode, a cathode and a component layer including a light emission layer, the component layer being provided between the anode and the cathode, wherein the component layer contains a compound represented by formula K,

Formula K





wherein  $R_{001}$  and  $R_{002}$  independently represent a substituent, provided that  $R_{001}$  and  $R_{002}$  do not combine with each other to form a ring, wherein the sum of a van der Waals volume of  $R_{001}$  and that of  $R_{002}$  is in the range of from 60 to 280 Å<sup>3</sup>;  $Ar_{30}$  and  $Ar_{31}$  independently represent a divalent aromatic hydrocarbon group or aromatic heterocyclic group;  $R_{72}$ ,  $R_{73}$ ,  $R_{74}$ , and  $R_{75}$  independently represent a hydrogen atom or a substituent;  $r_1$ ,  $r_2$ ,  $r_3$ , and  $r_4$  independently represent an integer of from 1 to 4; and  $x$  represents an integer of not less than 1.

37. The organic electroluminescent element of claim 36, wherein a hole blocking layer is provided between the light emission layer and the cathode.

38. The organic electroluminescent element of claim 37, wherein the hole blocking layer is comprised of at least one selected from the group consisting of a styryl compound, a triazole derivative, a phenanthroline derivative, an oxadiazole derivative and a boron derivative.

39. The organic electroluminescent element of claim 37, wherein the hole blocking layer is comprised of at least one selected from the group consisting of compounds represented by formula 5, 6, 7 or 8 above.

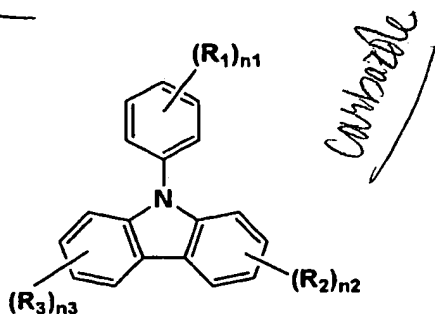
40. The organic electroluminescent element of claim 36, wherein the light emission layer contains the compound represented by formula K above.

41. The organic electroluminescent element of claim 36, wherein the organic electroluminescent element contains a phosphorescent compound.

42. The organic electroluminescent element of claim 41, wherein the phosphorescent compound is an osmium complex, an iridium complex or a platinum complex.

43. An organic electroluminescent element comprising an anode, a cathode and a component layer including a light emission layer, the component layer being provided between the anode and the cathode, wherein the component layer contains an electron transporting material having a phosphorescence 0-0 band of not more than 450 nm, and the light emission layer contains a phosphorescent compound and a compound represented by formula A,

Formula A



wherein  $R_1$ ,  $R_2$  and  $R_3$  independently represent a substituted or unsubstituted alkyl group or a substituted or unsubstituted cycloalkyl group;  $n_1$  represents an integer of from 0 to 5; and  $n_2$  and  $n_3$  independently represent an integer of from 0 to 4, provided that  $R_1$  and  $R_2$ ,  $R_1$  and  $R_3$ , or  $R_2$  and  $R_3$ , each may combine with each other to form a ring.

44. The organic electroluminescent element of claim 43, wherein the organic electroluminescent element emits a white light.

45. An organic electroluminescent element comprising an anode, a cathode and a component layer including a light emission layer, the component layer being provided between the anode and the cathode, wherein the component layer contains a hole transporting material having a phosphorescence 0-0 band of not more than 480 nm, and the light emission layer contains a phosphorescent compound and a compound represented by formula A above.

46. The organic electroluminescent element of claim 45, wherein the organic electroluminescent element emits a white light.

47. An organic electroluminescent element comprising an anode, a cathode and a component layer including a light emission layer, the component layer being provided between

the anode and the cathode, wherein the light emission layer contains a phosphorescent compound having a phosphorescence 0-0 band of not more than 480 nm and a compound represented by formula A above.

48. The organic electroluminescent element of claim 47, wherein the organic electroluminescent element emits a white light.

49. A display comprising the organic electroluminescent element of any one of claims 1 through 48.

50. An illuminator comprising the organic electroluminescent element of any one of claims 1 through 48.

51. A display comprising the illuminator of claim 50, and a liquid crystal cell as a displaying element.

=> file reg

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USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.  
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SAV L6 THO025/A  
L8 50 S L4 SSS SAM SUB=L7  
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E TRIAZOLE

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L15 1 S E4

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L20 1 S L18 AND L19

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L24 1 S L23 AND L22

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L27 241763 S L26 AND RSD/FA

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L30 13191 S L21 OR ?PHENATHROLIN?  
L31 11534 S L25 OR ?OXADIAZOLE?  
L32 193511 S L27 OR (BORON## OR B) (2A) (DERIV? OR COMPOUND# OR COMPD#

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L36 995 S L13  
L37 97603 S (ELECTROLUM!N? OR ORGANOLUM!N? OR (ELECTRO OR ORGANO OR  
L38 274 S L37 AND L36  
L39 126 S L38 AND (L28 OR L29 OR L30 OR L31 OR L32)  
L40 71 S L38 AND L34  
L41 51 S L39 AND L40  
L42 125 S (PHOSPHOR OR PHOSPHORES?) (3A) (200 OR 210 OR 220 OR 230  
L43 1 S L41 AND L42  
SEL L43 1 RN

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L48 909119 S DISPLAY? OR SCREEN? OR MONITOR? OR PANEL? OR FLATPANEL?  
L49 138762 S (LIQ# OR LIQUID?) (2A)CRYST? OR LCD# OR LC(2A)L48  
L50 3 S L41 AND L47  
L51 6 S L38 AND L47  
L52 1 S L41 AND L49  
L53 7 S L38 AND L49  
L54 13 S L43 OR L50 OR L51 OR L52 OR L53  
L55 47 S L41 NOT L54  
L56 4 S L54 AND (1840-2002/PY OR 1840-2002/PRY)  
L57 17 S L55 AND (1840-2002/PY OR 1840-2002/PRY)

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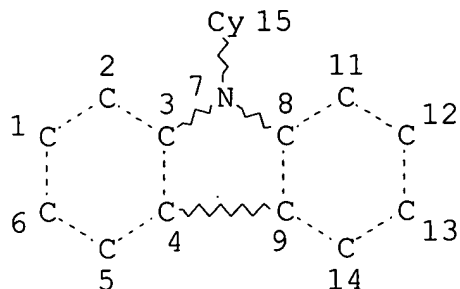
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SAV L67 THO025D/A

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L72 436 S L70 AND L34  
L73 248 S L71 AND L72  
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L75 QUE ANOD## OR (NEG# OR NEGATIV?) (2A)ELECTROD##  
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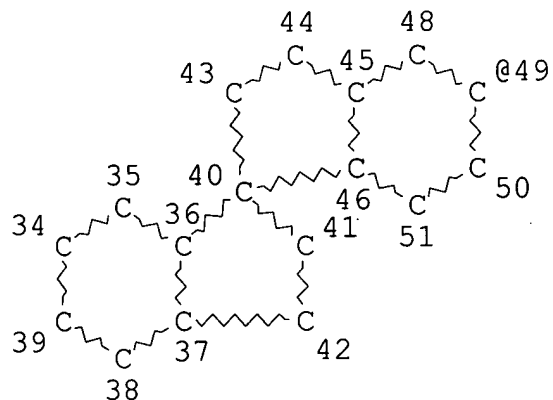
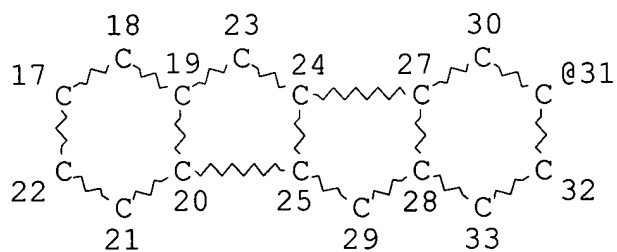
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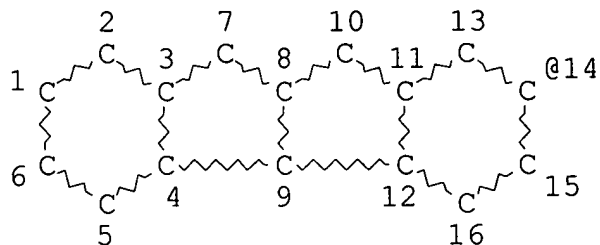
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L60 STR



G1 54





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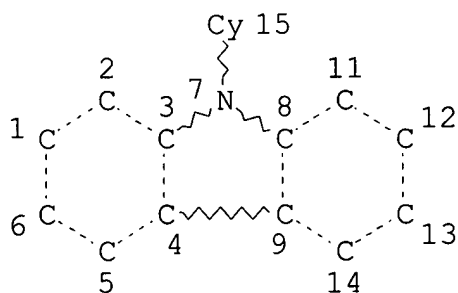
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3 ANSWERS

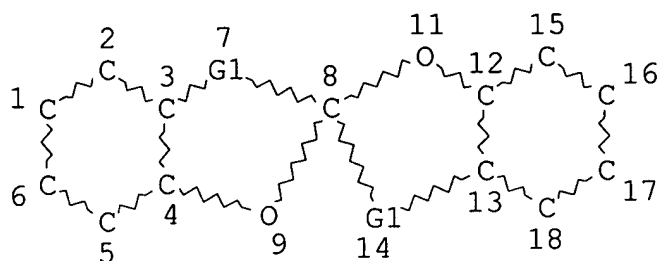
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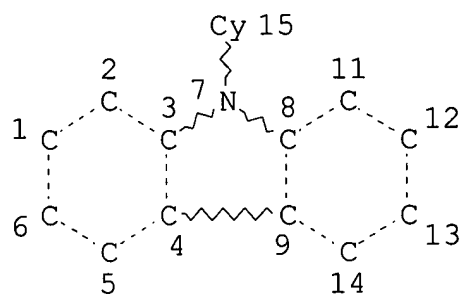
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3 ANSWERS

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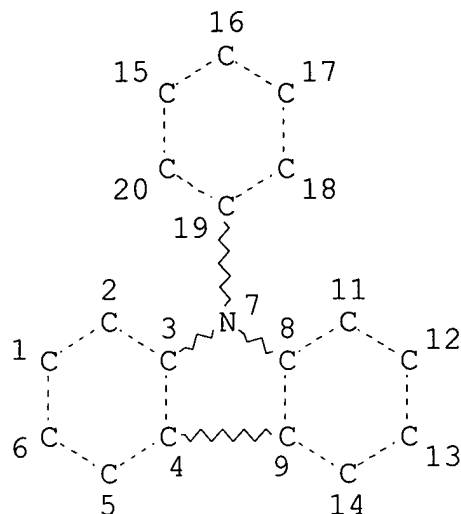
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NUMBER OF NODES IS 14

STEREO ATTRIBUTES: NONE

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L10 STR



NODE ATTRIBUTES:

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NUMBER OF NODES IS 19

STEREO ATTRIBUTES: NONE

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3134 ANSWERS

SEARCH TIME: 00.00.01

=> file hca

FILE 'HCA' ENTERED AT 14:23:11 ON 08 NOV 2005

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=> d 164 1 all hitstr

L64 ANSWER 1 OF 1 HCA COPYRIGHT 2005 ACS on STN  
 AN 141:30822 HCA  
 ED Entered STN: 01 Jul 2004  
 TI Organic **electroluminescent** element, display and  
 illuminator  
 IN Oshiyama, Tomohiro; Kinoshita, Motoi; Yamada, Taketoshi; Kita,  
 Hiroshi; Fukuda, Mitsuhiro; Suzuri, Yoshiyuki; Ueda, Noriko  
 PA Konica Minolta Holdings Inc., Japan  
 SO Eur. Pat. Appl., 162 pp.  
 CODEN: EPXXDW  
 DT Patent  
 LA English  
 IC ICM C09K011-06  
 ICS H05B033-14; H01L051-20  
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related  
 Properties)

FAN.CNT 1

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	EP 1424381	A3	20050119		
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	US 2004115476	A1	20040617	US 2003-718025	200311 20
	JP 2004311410	A2	20041104	JP 2004-49237	200402 25
	JP 2004311412	A2	20041104	JP 2004-49239	200402 25
	JP 2004311414	A2	20041104	JP 2004-49241	200402 25
PRAI	JP 2002-342193	A	20021126		
	JP 2003-61201	A	20030307		
	JP 2003-84071	A	20030326		
	JP 2003-84073	A	20030326		
	JP 2003-84075	A	20030326		

JP 2003-160609	A	20030605
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CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
EP 1424381	ICM	C09K011-06
	ICS	H05B033-14; H01L051-20
EP 1424381	ECLA	C09K011/06; H01L051/30H4; H01L051/30H8; H01L051/30S; H05B033/14
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US 2004115476	NCL	428/690.000
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JP 2004311414	FTERM	3K007/AB02; 3K007/AB03; 3K007/AB11; 3K007/DB03; 3K007/FA01

OS MARPAT 141:30822

GI

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB The invention refers to an org. **electroluminescent** element comprising a component layer between an anode and cathode contg. a compd. represented by X1-(A1)<sub>n</sub> wherein A1 = I [Ar = divalent arom. hydrocarbon or arom. heterocyclic; R<sub>1,2</sub> = H, (un)substituted alkyl, cycloalkyl, aralkyl, aryl, alkoxy, aryloxy, or alkenyl, cyano, hydroxyl or halo; na,nb = 1 - 4; X1 = II - XII; R<sub>11-14</sub>,R<sub>21-24</sub>,R<sub>31-34</sub> = H, (un)substituted alkyl, cycloalkyl, aralkyl, aryl, alkoxy, aryloxy, or alkenyl, cyano, hydroxyl or halo; R<sub>41,42</sub>, R<sub>61</sub> = alkyl; R<sub>51-52</sub> = (un)substituted alkyl, cycloalkyl, aralkyl, aryl, alkoxy, aryloxy or alkenyl, cyano, hydroxyl or halo; Xa = divalent unsubstituted alkyl-substituted or 6- or 7-membered monocyclic heterocycle; R<sub>71-78</sub>, R<sub>81-88</sub>, R<sub>91-98</sub> = H, alkyl, \* represents a linkage site].

ST **electroluminescent** display carbazole deriv

IT **Electroluminescent** devices  
(displays; org. **electroluminescent** element, display and illuminator)

IT **Luminescent** screens  
(**electroluminescent**; org.  
**electroluminescent** element, display and illuminator)

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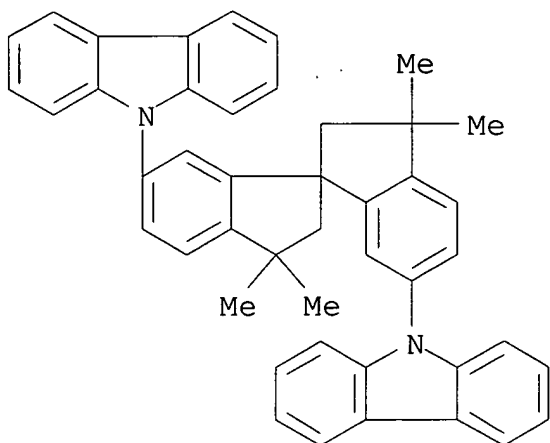
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IT **697312-17-7 697312-18-8 697312-19-9**

(org. **electroluminescent** element, display and illuminator)

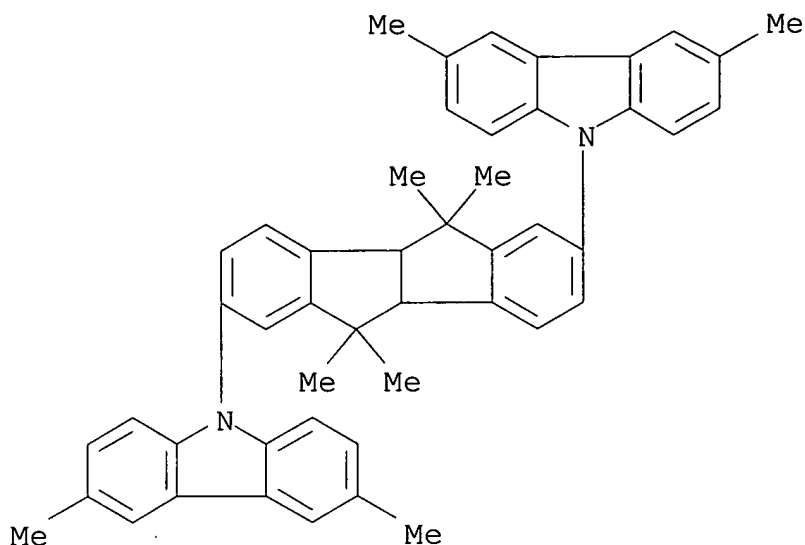
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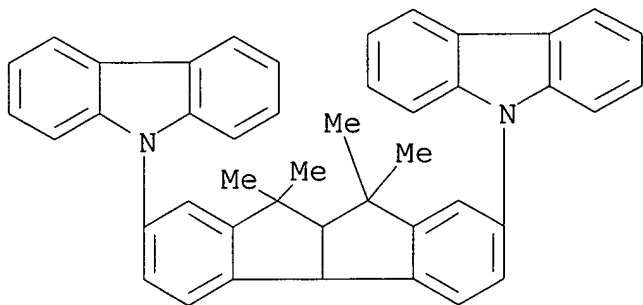
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RN 697312-19-9 HCA

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=&gt; d 169 1 all hitstr

L69 ANSWER 1 OF 1 HCA COPYRIGHT 2005 ACS on STN

AN 141:30822 HCA

ED Entered STN: 01 Jul 2004

TI Organic **electroluminescent** element, display and illuminator

IN Oshiyama, Tomohiro; Kinoshita, Motoi; Yamada, Taketoshi; Kita, Hiroshi; Fukuda, Mitsuhiro; Suzuri, Yoshiyuki; Ueda, Noriko

PA Konica Minolta Holdings Inc., Japan

SO Eur. Pat. Appl., 162 pp.

CODEN: EPXXDW

DT Patent  
 LA English  
 IC ICM C09K011-06  
 ICS H05B033-14; H01L051-20  
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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	JP 2003-84071	A	20030326		
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	JP 2003-84075	A	20030326		
	JP 2003-160609	A	20030605		

## CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
EP 1424381	ICM	C09K011-06
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EP 1424381	ECLA	C09K011/06; H01L051/30H4; H01L051/30H8; H01L051/30S; H05B033/14
JP 2004335427	FTERM	3K007/AB02; 3K007/AB11; 3K007/DB03
US 2004115476	NCL	428/690.000
	ECLA	C09K011/06; H01L051/30H4; H01L051/30H8;



H01L051/30S; H05B033/14  
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 3K007/FA01  
 JP 2004311414 FTERM 3K007/AB02; 3K007/AB03; 3K007/AB11; 3K007/DB03;  
 3K007/FA01  
 OS MARPAT 141:30822  
 GI

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB The invention refers to an org. **electroluminescent** element comprising a component layer between an anode and cathode contg. a compd. represented by  $X1-(Al)_n$  wherein  $Al = I$  [Ar = divalent arom. hydrocarbon or arom. heterocyclic;  $R1,2 = H$ , (un)substituted alkyl, cycloalkyl, aralkyl, aryl, alkoxy, aryloxy, or alkenyl, cyano, hydroxyl or halo;  $na,nb = 1 - 4$ ;  $X1 = II - XII$ ;  $R11-14, R21-24, R31-34 = H$ , (un)substituted alkyl, cycloalkyl, aralkyl, aryl, alkoxy, aryloxy, or alkenyl, cyano, hydroxyl or halo;  $R41,42, R61 = alkyl$ ;  $R51-52 = (un)substituted alkyl$ , cycloalkyl, aralkyl, aryl, alkoxy, aryloxy or alkenyl, cyano, hydroxyl or halo;  $Xa = divalent unsubstituted alkyl-substituted$  or 6- or 7-membered monocyclic heterocycle;  $R71-78, R81-88, R91-98 = H$ , alkyl, \* represents a linkage site].

ST **electroluminescent** display carbazole deriv

IT **Electroluminescent** devices  
 (displays; org. **electroluminescent** element, display and illuminator)

IT **Luminescent** screens  
 (**electroluminescent**; org. **electroluminescent** element, display and illuminator)

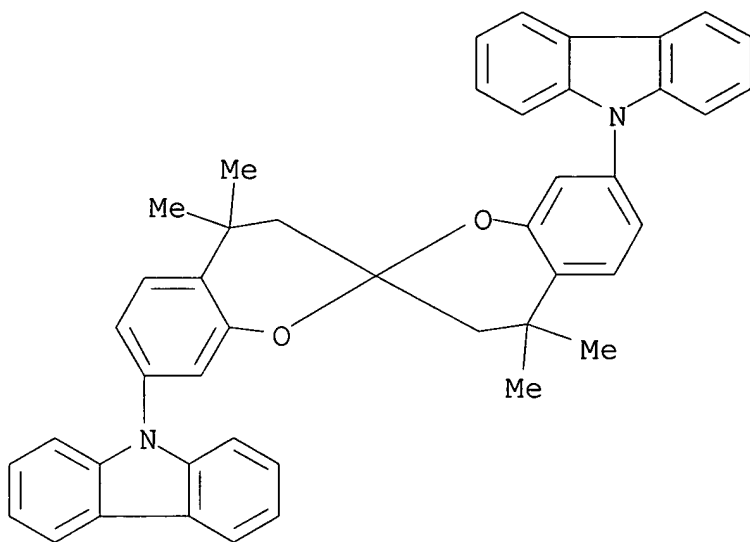
IT 419536-32-6 697311-97-0 697311-98-1 697311-99-2 697312-00-8  
 697312-01-9 697312-02-0 697312-03-1 697312-04-2 697312-05-3  
 697312-06-4 697312-07-5 697312-08-6 697312-09-7 697312-10-0  
 697312-11-1 697312-12-2 697312-13-3 697312-14-4 697312-15-5  
 697312-16-6 697312-17-7 697312-18-8 697312-19-9  
**697312-20-2 697312-21-3 697312-22-4**  
 697312-23-5 697312-24-6 697312-25-7 697312-26-8 697312-27-9  
 697312-28-0 697312-29-1 697312-30-4 697312-31-5 697312-32-6  
 697312-33-7 697312-34-8 697312-35-9 697312-36-0  
 (org. **electroluminescent** element, display and illuminator)

IT **697312-20-2 697312-21-3 697312-22-4**  
 (org. **electroluminescent** element, display and

illuminator)

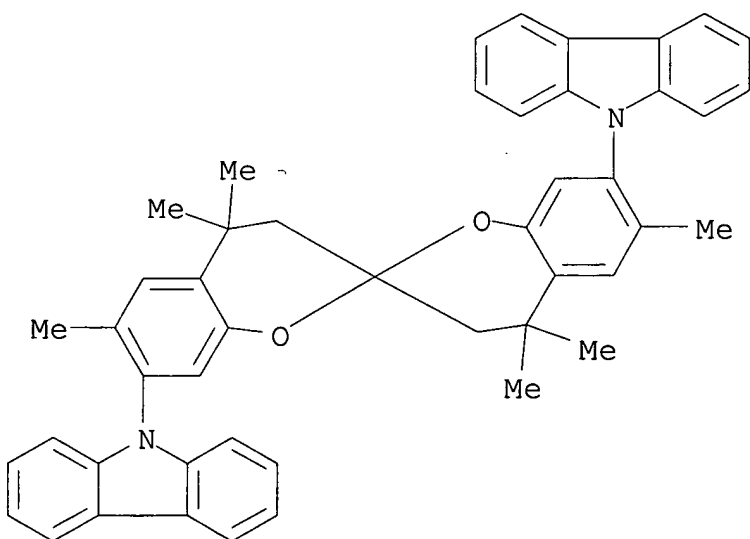
RN 697312-20-2 HCA

CN 9H-Carbazole, 9,9'-(3,3',4,4'-tetrahydro-4,4,4',4'-tetramethyl-2,2'-spirobi[2H-1-benzopyran]-7,7'-diyl)bis- (9CI) (CA INDEX NAME)



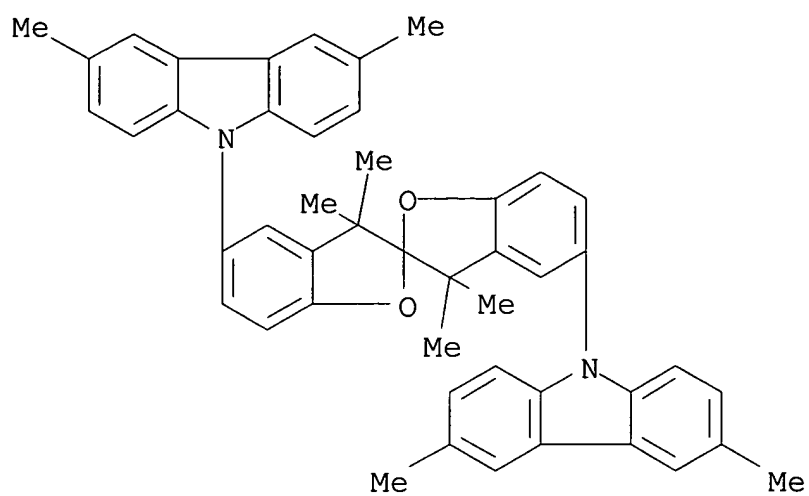
RN 697312-21-3 HCA

CN 9H-Carbazole, 9,9'-(3,3',4,4'-tetrahydro-4,4,4',4',6,6'-hexamethyl-2,2'-spirobi[2H-1-benzopyran]-7,7'-diyl)bis- (9CI) (CA INDEX NAME)



RN 697312-22-4 HCA

CN 9H-Carbazole, 9,9'-(3,3,3',3'-tetramethyl-2,2' (3H,3'H)-spirobibenzofuran-5,5'-diyl)bis[3,6-dimethyl- (9CI) (CA INDEX NAME)



=> d 178 8,16,24 cbib abs hitstr hitind

L78 ANSWER 8 OF 24 HCA COPYRIGHT 2005 ACS on STN

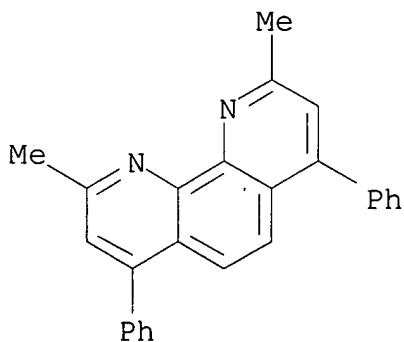
138:360456 **Light emitting** device. Yamazaki, Shunpei; Konuma, Toshimitsu; Yamazaki, Hiroko (Semiconductor Energy Laboratory Co., Ltd., Japan). U.S. Pat. Appl. Publ. US 2003080338 A1 20030501, 38 pp. (English). CODEN: USXXCO. APPLICATION: US 2002-278855 20021024. PRIORITY: JP 2001-330022 20011026.

AB A **light emitting** device, which may be an active matrix type, is described comprising a TFT provided over an insulation surface, an interlayer insulating film formed over the TFT, a pixel electrode formed over the interlayer insulating film, an insulating film covering edge portions of the pixel electrode, a **cathode** formed over the pixel electrode, a layer comprising an org. compd. formed over the **cathode**, a protector formed over the layer comprising an org. compd., wherein the protector formed on the org. compd. layer has a transmittance of 70-100%, and the protector prevents a damage which may occur to the org. compd. layer when the **anode** is formed by a sputtering method, and an **anode** formed over the protector, and wherein the TFT comprises a source region and a drain region, the pixel electrode is elec. connected to either of the source region or the drain region at an opening formed in the interlayer insulating film, and the protector consists of a material whose work function = 4.5-5.5 eV.

IT 4733-39-5, Bathocuproine  
(blocking layer; **light emitting** device having damage preventing protector)

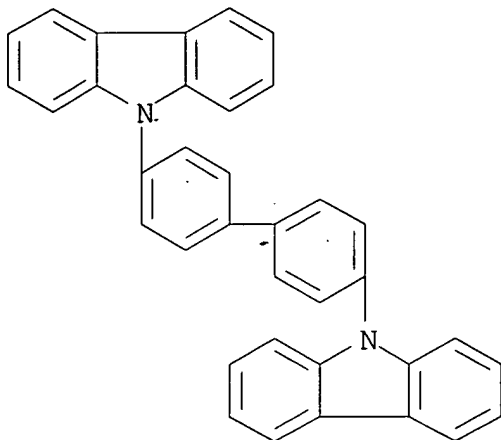
RN 4733-39-5 HCA

CN 1,10-Phenanthroline, 2,9-dimethyl-4,7-diphenyl- (6CI, 7CI, 8CI, 9CI)  
(CA INDEX NAME)



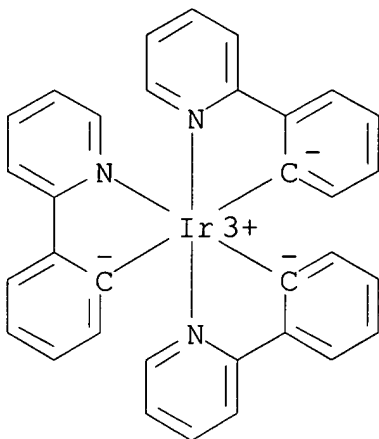
IT 58328-31-7 94928-86-6, Tris(2-phenylpyridine)iridium  
(**light emitting** layer; **light emitting** device having damage preventing protector)  
58328-31-7 HCA

CN 9H-Carbazole, 9,9'-[1,1'-biphenyl]-4,4'-diylbis- (9CI) (CA INDEX NAME)



RN 94928-86-6 HCA

CN Iridium, tris[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]-, (OC-6-22)- (9CI) (CA INDEX NAME)

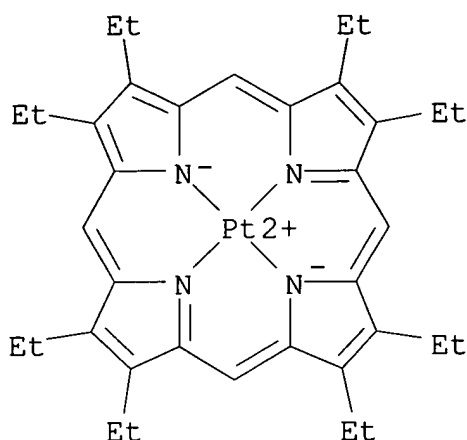


IT **31248-39-2**

(luminescent layer; **light emitting** device  
having damage preventing protector)

RN 31248-39-2 HCA

CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)-.kappa.N21,.kappa.N22,.kappa.N23,.kappa.N24]-, (SP-4-1)- (9CI) (CA INDEX NAME)



IC ICM H01L029-04

INCL 257059000

CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 73, 76

ST **light emitting** device active matrix protector

IT **Electroluminescent** devices

(displays; **light emitting** device having damage preventing protector)

IT Luminescent screens

(**electroluminescent**; **light emitting** device having damage preventing protector)

IT Optical memory devices

(recording; **light emitting** device having damage preventing protector for)

IT Silicate glasses

(substrate; **light emitting** device having damage preventing protector)

IT 11105-01-4, Silicon oxynitride 12033-89-5, Silicon nitride, uses 12633-97-5, Aluminum nitride oxide 24304-00-5, Aluminum nitride (barrier film; **light emitting** device having damage preventing protector)

IT **4733-39-5**, Bathocuproine

(blocking layer; **light emitting** device having damage preventing protector)

IT 7440-33-7, Tungsten, uses

(conductive film; **light emitting** device having damage preventing protector)

IT 7440-38-2, Arsenic, uses 7723-14-0, Phosphorus, uses

(conductive layers contg.; **light emitting** device having damage preventing protector)

IT 2085-33-8, AlQ3

- (electron transportation layer; **light emitting** device having damage preventing protector)
- IT 12033-62-4, Tantalum nitride (TaN)  
(etching film; **light emitting** device having damage preventing protector)
- IT 147-14-8, Copper phthalocyanine  
(hole injection layer; **light emitting** device having damage preventing protector)
- IT 123847-85-8, .alpha.-NPD  
(hole transportation layer; **light emitting** device having damage preventing protector)
- IT 58328-31-7 94928-86-6, Tris(2-phenylpyridine)iridium  
(**light emitting** layer; **light emitting** device having damage preventing protector)
- IT 31248-39-2  
(luminescent layer; **light emitting** device having damage preventing protector)
- IT 7440-06-4, Platinum, uses 7440-22-4, Silver, uses 7440-57-5, Gold, uses  
(protector; **light emitting** device having damage preventing protector)

L78 ANSWER 16 OF 24 HCA COPYRIGHT 2005 ACS on STN

137:161254 **Light emitting** device and manufacturing method thereof. Seo, Satoshi; Yamazaki, Shunpei (Japan). U.S. Pat. Appl. Publ. US 2002109136 A1 **20020815**, 41 pp. (English).  
CODEN: USXXCO. APPLICATION: US 2002-43812 20020110. PRIORITY: JP 2001-10887 20010118.

AB A org. **light emitting** device is described comprising an **anode**; a **cathode**; and an org. compd. film sandwiched between the **anode** and the **cathode**, wherein the org. compd. film comprises at least two compds. selected from the group consisting of a hole injecting compd. that receives holes from the **anode**; a hole transporting compd. that has a hole mobility that is larger than its electron mobility; an electron transporting compd. that has an electron mobility that is larger than its hole mobility; an electron injecting compd. that receives electrons from the **cathode**; and a blocking compd. capable of stopping the movement of holes or electrons, wherein the two compds. selected are materials capable of undergoing vacuum evapn., wherein the org. compd. film comprises a region in which the two compds. are mixed, and wherein the elec. current vs. elec. voltage property of the org. **light emitting** elements show a rectification property, wherein the org. compd. film comprises a region in which the first and the second org. compd. are mixed, wherein the concn. of the two compds. change within the region, or wherein the org. compd. film comprises

a region in which the concn. of the first and the second org. compd. continuously changes. A method of fabricating the **light emitting** device is also described entailing providing a substrate comprising an electrode; making a vacuum chamber comprising at least first and second org. compd. evapn. sources in a reduced pressure state by reducing the pressure within the vacuum chamber to be equal to or less than  $10^{-3}$  Pa; and performing evapn. of the first org. compd. in the first org. compd. evapn. source and a second org. compd. contained in the second org. compd. evapn. source on the substrate while a pump for reducing the pressure within the vacuum chamber is operated. wherein each of the first and second org. compd. evapn. sources comprises a container comprising an org. compd., and wherein the second org. compd. is evapd. next after the first org. compd. is evapd., under a state in which the first org. compd. evapn. source is not heated and in which an atm. of the first org. compd. remains within the vacuum chamber.

IT 4733-39-5, BCP 31248-39-2, (2,3,7,8,12,13,17,18-

Octaethyl-21H-23H-porphyrin)platinum 58328-31-7

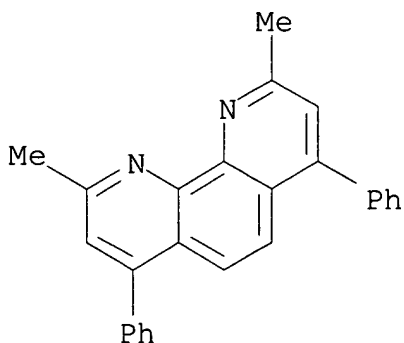
94928-86-6, Tris(2-phenylpyridine)iridium

149005-33-4 150405-69-9 163226-12-8

(light emitting device and fabrication method)

RN 4733-39-5 HCA

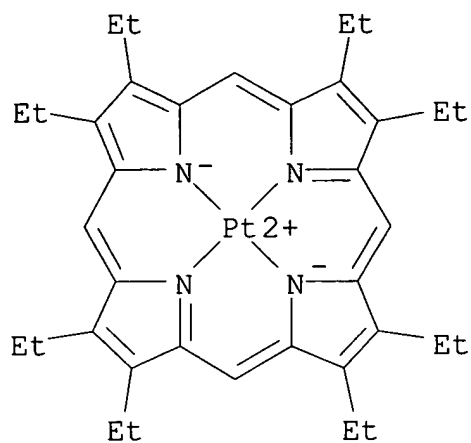
CN 1,10-Phenanthroline, 2,9-dimethyl-4,7-diphenyl- (6CI, 7CI, 8CI, 9CI)  
(CA INDEX NAME)



RN 31248-39-2 HCA

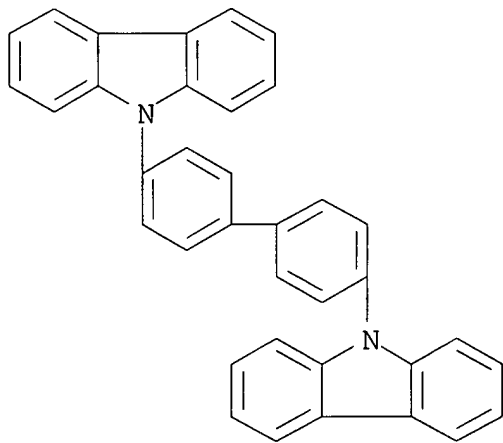
CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)-  
.kappa.N21,.kappa.N22,.kappa.N23,.kappa.N24]-, (SP-4-1)- (9CI) (CA  
INDEX NAME)





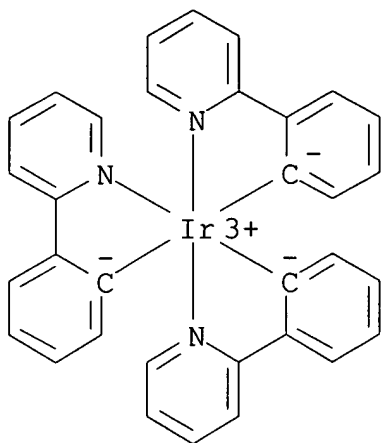
RN 58328-31-7 HCA

CN 9H-Carbazole, 9,9'-[1,1'-biphenyl]-4,4'-diylbis- (9CI) (CA INDEX NAME)



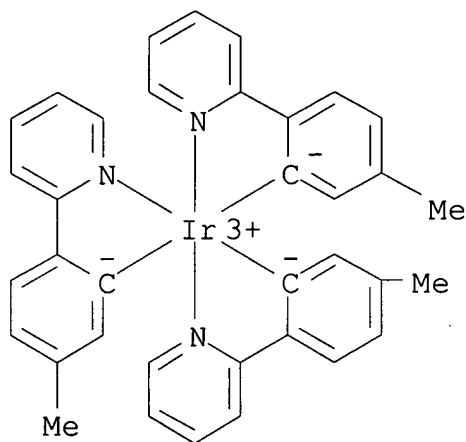
RN 94928-86-6 HCA

CN Iridium, tris[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]-, (OC-6-22)- (9CI) (CA INDEX NAME)



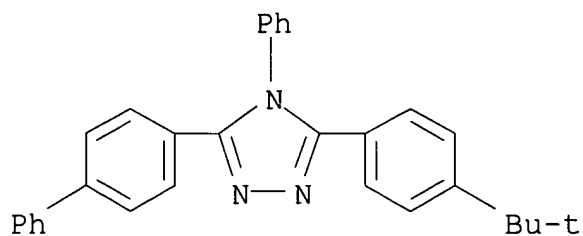
RN 149005-33-4 HCA

CN Iridium, tris[5-methyl-2-(2-pyridinyl)phenyl-C,N]-, (OC-6-22)- (CA INDEX NAME)

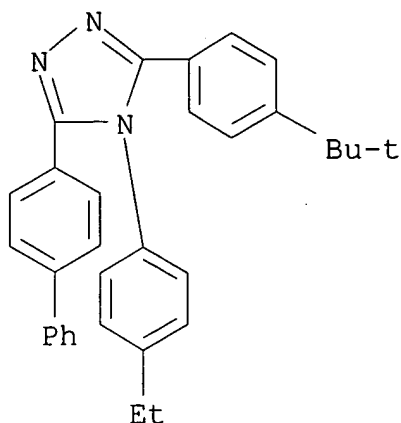


RN 150405-69-9 HCA

CN 4H-1,2,4-Triazole, 3-[1,1'-biphenyl]-4-yl-5-[4-(1,1-dimethylethyl)phenyl]-4-phenyl- (9CI) (CA INDEX NAME)



RN 163226-12-8 HCA  
CN 4H-1,2,4-Triazole, 3-[1,1'-biphenyl]-4-yl-5-[4-(1,1-dimethylethyl)phenyl]-4-(4-ethylphenyl)- (9CI) (CA INDEX NAME)



IC ICM H01L035-24  
INCL 257040000  
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
Section cross-reference(s): 76  
ST **light emitting** device org fabrication  
IT **Electroluminescent** devices  
Electronic device fabrication  
(**light emitting** device and fabrication method)  
IT 119-91-5D, Cuproin, vaso-derivs. 147-14-8, Copper phthalocyanine 2085-33-8, AlQ3 **4733-39-5**, BCP 7429-90-5, Aluminum, uses 7439-88-5, Iridium, uses 7440-06-4, Platinum, uses 7440-41-7, Beryllium, uses 7440-66-6, Zinc, uses 14752-00-2, Aluminum Tris(4-methyl-8-quinolinolate) 15082-28-7, 2-(4-Biphenyl)-5-(4-tert-butylphenyl)-1,3,4-**oxadiazole 31248-39-2**, (2,3,7,8,12,13,17,18-Octaethyl-21H-23H-porphyrin)platinum **58328-31-7** 65181-78-4, 4,4'-Bis[N-(3-methylphenyl)-N-phenyl-amino]-biphenyl **94928-86-6**, Tris(2-phenylpyridine)iridium 123847-85-8, 4,4'-Bis[N-(1-naphthyl)-N-phenyl-amino]-biphenyl 124729-98-2 138372-67-5 148896-39-3 **149005-33-4 150405-69-9 163226-12-8**  
(**light emitting** device and fabrication method)

L78 ANSWER 24 OF 24 HCA COPYRIGHT 2005 ACS on STN  
133:327530 High quantum efficiency in organic **light-emitting** devices with **iridium-complex** as a triplet emissive center. Tsutsui, Tetsuo; Yang, Moon-Jae; Yahiro, Masayuki; Nakamura, Kenji; Watanabe, Teruichi; Tsuji, Taishi;

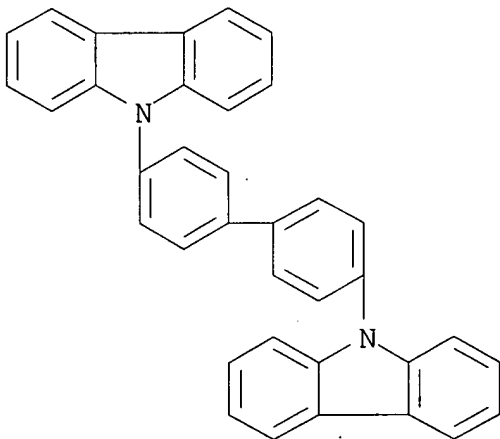
Fukuda, Yoshinori; Wakimoto, Takeo; Miyaguchi, Satoshi (Department of Applied Science for Electronics and Materials, Graduate School of Engineering Sciences, Kyushu University, Fukuoka, 816-8580, Japan). Japanese Journal of Applied Physics, Part 2: Letters, 38(12B), L1502-L1504 (English) **1999**. CODEN: JAPLD8. ISSN: 0021-4922. Publisher: Japan Society of Applied Physics.

AB Multilayer org. **light-emitting** devices with phosphorescent guest emitter, tris(2-phenylpyridine)iridium doped in a host 4,4'-N,N'-dicarbazolbiphenyl layer were prepd. The device with the 6.5 wt% guest emitter exhibited external quantum efficiency and power luminous efficiency of 13.7% and 38.31 m/W, resp. at the luminance of 105 cd/m<sup>2</sup> driven at the voltage of 4.0 V and c.d. of 0.215 mA/cm<sup>2</sup>. The half decay lifetime under continuous const.-current driving for the initial luminance of 500 cd/m<sup>2</sup> was 170 h.

IT **58328-31-7**, 4,4'-N,N'-Dicarbazolylbiphenyl  
(charge carrier; high quantum efficiency of org. **light-emitting** devices contg. tris(phenylpyridine)iridium as triplet emissive center)

RN 58328-31-7 HCA

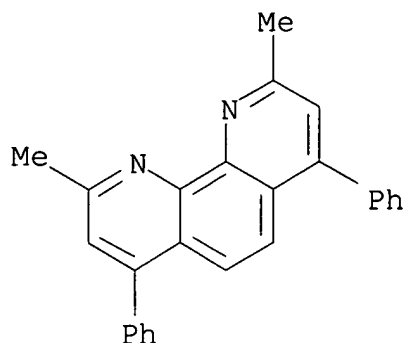
CN 9H-Carbazole, 9,9'-[1,1'-biphenyl]-4,4'-diylbis- (9CI) (CA INDEX NAME)



IT **4733-39-5**, 2,9-Dimethyl-4,7-diphenyl-1,10-phenanthroline  
(electron transport/hole blocking layer; high quantum efficiency of org. **light-emitting** devices contg. tris(phenylpyridine)iridium as triplet emissive center)

RN 4733-39-5 HCA

CN 1,10-Phenanthroline, 2,9-dimethyl-4,7-diphenyl- (6CI, 7CI, 8CI, 9CI)  
(CA INDEX NAME)

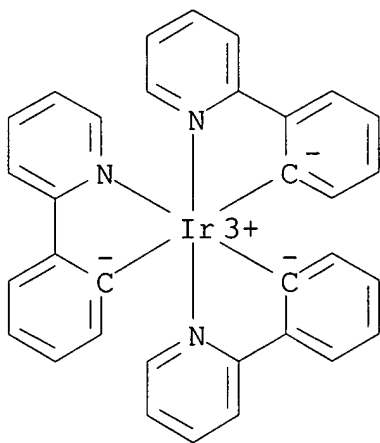


IT 94928-86-6

(triplet emitter; high quantum efficiency of org. **light emitting** devices contg. tris(phenylpyridine)iridium as triplet emissive center)

RN 94928-86-6 HCA

CN Iridium, tris[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]-, (OC-6-22)-(9CI) (CA INDEX NAME)



CC 74-1 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 76

ST org **light emitting** device phenylpyridine  
**iridium complex** phosphorescence triplet; quantum  
 efficiency phosphorescent **iridium complex** org  
**light emitting** device; LED quantum efficiency  
 phosphorescent **iridium complex**;  
**electroluminescent** display LED quantum efficiency  
 phosphorescent **iridium complex**

IT Luminescence, **electroluminescence**  
 Triplet state excitation

- (high quantum efficiency of **LED** contg.  
tris(phenylpyridine)iridium as phosphorescent emissive center)
- IT Phosphorescence  
Triplet state transition  
(high quantum efficiency of org. **light-emitting**  
devices contg. tris(phenylpyridine)iridium as triplet emissive  
center)
- IT **Electroluminescent** devices  
(org.; high quantum efficiency of org. **light-**  
**emitting** devices contg. tris(phenylpyridine)iridium as  
triplet emissive center)
- IT Triplet state  
Triplet state  
(triplet-triplet energy transfer; high quantum efficiency of org.  
**light-emitting** devices contg.  
tris(phenylpyridine)iridium as triplet emissive center)
- IT Energy transfer  
Energy transfer  
(triplet-triplet; high quantum efficiency of org. **light**  
**-emitting** devices contg. tris(phenylpyridine)iridium as  
triplet emissive center)
- IT 50926-11-9, ITO  
(**anode**; high quantum efficiency of org. **light**  
**-emitting** devices contg. tris(phenylpyridine)iridium as  
triplet emissive center)
- IT 12057-24-8, Lithium oxide, uses  
(**cathode** material; high quantum efficiency of org.  
**light-emitting** devices contg.  
tris(phenylpyridine)iridium as triplet emissive center)
- IT 7429-90-5, Aluminum, uses  
(**cathode**; high quantum efficiency of org. **light**  
**-emitting** devices contg. tris(phenylpyridine)iridium as  
triplet emissive center)
- IT **58328-31-7**, 4,4'-N,N'-Dicarbazolylbiphenyl  
(charge carrier; high quantum efficiency of org. **light-**  
**emitting** devices contg. tris(phenylpyridine)iridium as  
triplet emissive center)
- IT 2085-33-8, Tris-(8-hydroxyquinoline) aluminum  
(electron transport agent; high quantum efficiency of org.  
**light-emitting** devices contg.  
tris(phenylpyridine)iridium as triplet emissive center)
- IT **4733-39-5**, 2,9-Dimethyl-4,7-diphenyl-1,10-phenanthroline  
(electron transport/hole blocking layer; high quantum efficiency  
of org. **light-emitting** devices contg.  
tris(phenylpyridine)iridium as triplet emissive center)
- IT 123847-85-8, .alpha.-NPD  
(hole transport agent; high quantum efficiency of org.  
**light-emitting** devices contg.

tris(phenylpyridine)iridium as triplet emissive center)  
IT **94928-86-6**  
(triplet emitter; high quantum efficiency of org. **light**  
**-emitting** devices contg. tris(phenylpyridine)iridium as  
triplet emissive center)

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L98 ANSWER 1 OF 15 HCA COPYRIGHT 2005 ACS on STN

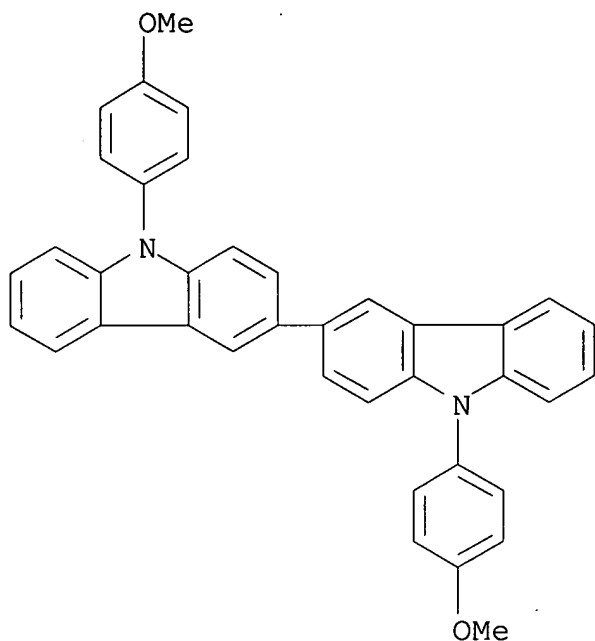
141:96372 **Electroluminescent** device. Brunner, Klemens; Van  
Dijken, Albert; Boerner, Herbert F.; Langeveld, Bea M. W.; Kiggen,  
Nicole M. M.; Bastiaansen, Jolanda J. A. M.; De Kok-Van Breemen,  
Margaretha M. (Koninklijke Philips Electronics N.V., Neth.). PCT  
Int. Appl. WO 2004055129 A1 20040701, 47 pp. DESIGNATED STATES: W:  
AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH,  
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS,  
LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH,  
PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ,  
UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG,  
CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML,  
MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2.  
APPLICATION: WO 2003-IB5782 20031205. PRIORITY: EP 2002-102754  
20021213; NL 2003-1022660 20030212; EP 2003-102262 20030723.

AB An **electroluminescent** device comprises a combination of a  
charge-transporting conjugated donor compd. and a phosphorescent  
acceptor compd., the charge-transporting conjugated donor compd.  
including a conjugated unit comprising a multivalent radical  
sub-unit having a 1st and a 2nd unsatd. radical site and a shortest  
chain of unsatd. atoms connecting the 1st and the 2nd radical site.  
The no. of unsatd. atoms the shortest chain consists of is an odd  
integer, preferably 1. Such odd-integer sub-units provide the donor  
compd. with lowest-energy triplet levels which are relatively high  
in energy which in turn enable the **EL** device, when the  
donor compd. is combined with a suitable acceptor compd., to  
**emit light** with high efficiency. Highly efficient  
green-emitting **electroluminescent** devices are obtained in  
this manner.

IT **57102-48-4 714972-53-9 714972-57-3**  
(charge-transporting conjugated donor for  
**electroluminescent** device)

RN 57102-48-4 HCA

CN 3,3'-Bi-9H-carbazole, 9,9'-bis(4-methoxyphenyl)- (9CI) (CA INDEX  
NAME)



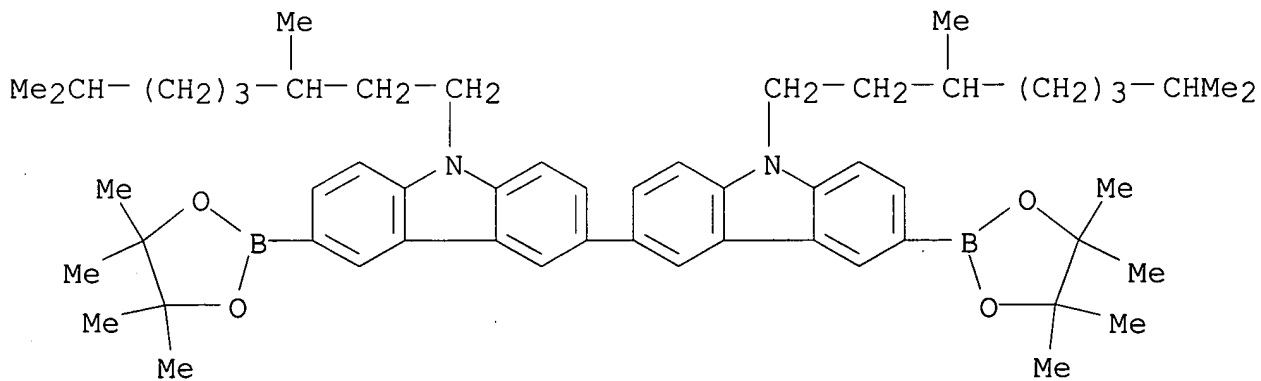
RN 714972-53-9 HCA

CN 3,3'-Bi-9H-carbazole, 9,9'-bis(3,7-dimethyloctyl)-6,6'-bis(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)-, polymer with 2-(3,5-dibromophenyl)-5-phenyl-1,3,4-oxadiazole and 1,3,5-tribromobenzene (9CI) (CA INDEX NAME)

CM 1

CRN 714972-52-8

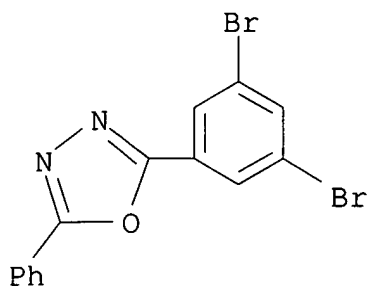
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CM 2

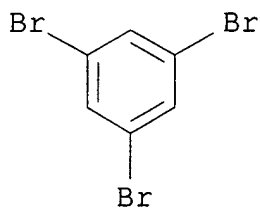


CRN 500300-16-3  
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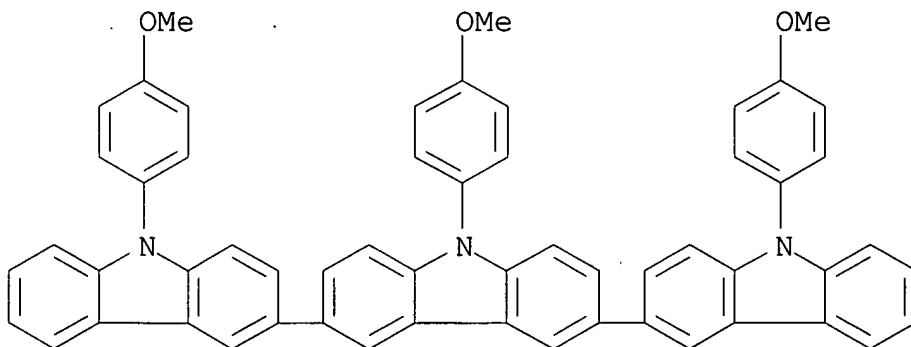


CM 3

CRN 626-39-1  
CMF C6 H3 Br3

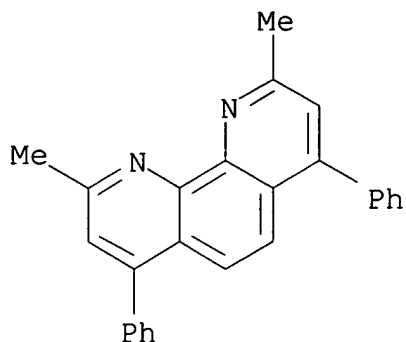


RN 714972-57-3 HCA  
CN 3,3':6',3''-Ter-9H-carbazole, 9,9',9''-tris(4-methoxyphenyl)- (9CI)  
(CA INDEX NAME)



IT **4733-39-5**, Bathocuproin  
(in **electroluminescent** device)  
RN 4733-39-5 HCA  
CN 1,10-Phenanthroline, 2,9-dimethyl-4,7-diphenyl- (6CI, 7CI, 8CI, 9CI)

(CA INDEX NAME)

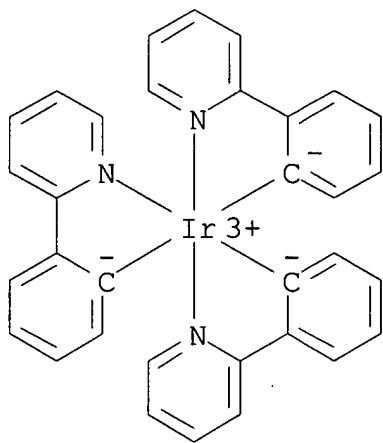


IT **94928-86-6**, Tris(2-phenylpyridine)iridium  
**504409-35-2**

(phosphorescent acceptor for **electroluminescent** device)

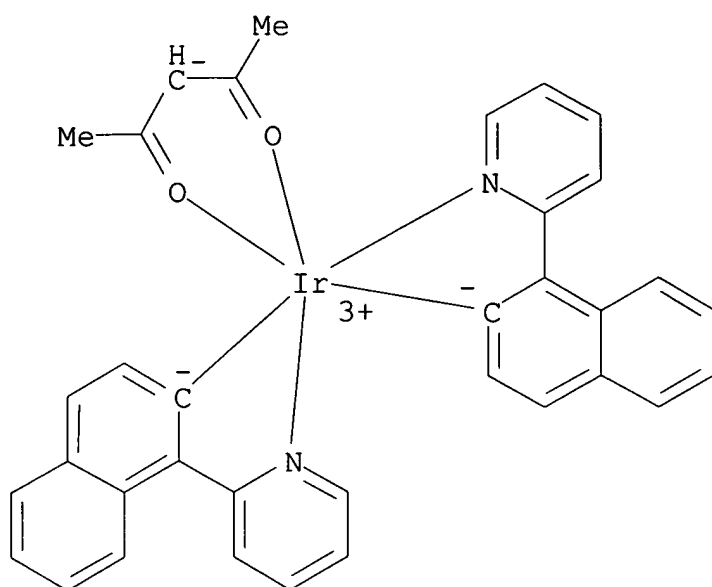
RN 94928-86-6 HCA

CN Iridium, tris[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]-, (OC-6-22)-  
 (9CI) (CA INDEX NAME)



RN 504409-35-2 HCA

CN Iridium, (2,4-pentanedionato-.kappa.O,.kappa.O')bis[1-(2-pyridinyl-.kappa.N)-2-naphthalenyl-.kappa.C]- (9CI) (CA INDEX NAME)



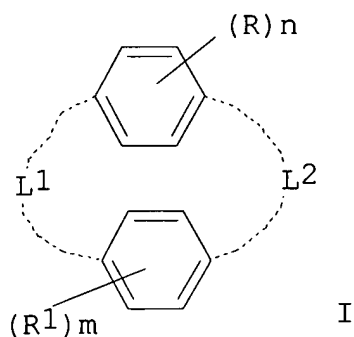
IC ICM C09K011-06  
ICS H01L051-30; C08G073-06; C08L079-04; H05B033-14; H01B001-12  
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
ST **electroluminescent** device charge transporting conjugated donor phosphorescent acceptor  
IT Electron donors  
(charge-transporting conjugated for **electroluminescent** device)  
IT **Electroluminescent** devices  
(contg. charge-transporting conjugated donor and phosphorescent acceptor)  
IT **Electroluminescent** devices  
(green-emitting; contg. charge-transporting conjugated donor and phosphorescent acceptor)  
IT Excited triplet state  
(in charge-transporting conjugated donor for **electroluminescent** device)  
IT Electron transfer  
(in conjugated donor for **electroluminescent** device)  
IT Electron acceptors  
(phosphorescent for **electroluminescent** device)  
IT **57102-48-4** 193017-42-4 628336-90-3 714972-47-1  
714972-48-2 714972-49-3 714972-50-6 714972-51-7  
**714972-53-9** 714972-55-1 714972-56-2 **714972-57-3**  
714972-58-4 714972-59-5  
(charge-transporting conjugated donor for **electroluminescent** device)

- IT 553-54-8, Lithium benzoate 2085-33-8, Tris(8-hydroxyquinolinato)aluminum **4733-39-5**, Bathocuproin 123847-85-8, .alpha.-NPD  
(in **electroluminescent** device)
- IT **94928-86-6**, Tris(2-phenylpyridine)iridium **504409-35-2**  
(phosphorescent acceptor for **electroluminescent** device)

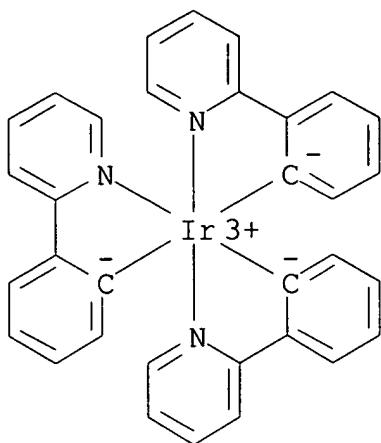
L98 ANSWER 2 OF 15 HCA COPYRIGHT 2005 ACS on STN

141:14542 Organic **electroluminescent** devices and displays using them. Kita, Hiroshi; Yamada, Taketoshi; Ueda, Noriko; Fukuda, Mitsuhiro (Konica Minolta Holdings Inc., Japan). Jpn. Kokai Tokkyo Koho JP 2004152527 A2 20040527, 37 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2002-314134 20021029.

GI

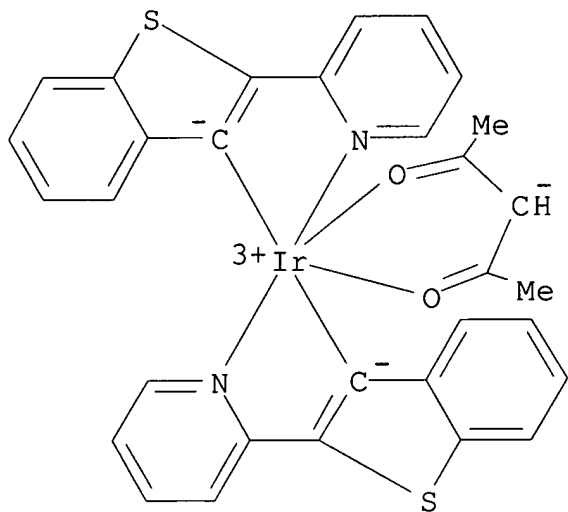


- AB The devices include paracyclophanes I (R, R1 = substituent; L1, L2 = bivalent linkage; m, n = 0-4; plural R may form ring when n .gtoreq.2; plural R1 may form ring when m .gtoreq.2). The devices and displays show high luminescence intensity and efficiency, and long service life.
- IT **94928-86-6 343978-79-0 376367-93-0**  
(dopants in emitter layers; org. **electroluminescent** devices and displays including paracyclophanes)
- RN 94928-86-6 HCA
- CN Iridium, tris[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]-, (OC-6-22)-(9CI) (CA INDEX NAME)



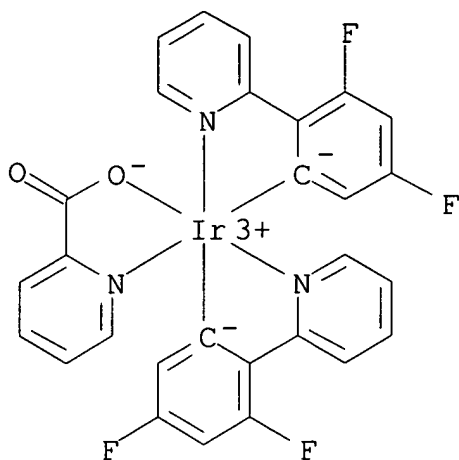
RN 343978-79-0 HCA

CN Iridium, (2,4-pentanedionato-.kappa.O,.kappa.O')bis[2-(2-pyridinyl-.kappa.N)benzo[b]thien-3-yl-.kappa.C]-, (OC-6-33)- (9CI) (CA INDEX NAME)



RN 376367-93-0 HCA

CN Iridium, bis[3,5-difluoro-2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C](2-pyridinecarboxylato-.kappa.N1,.kappa.O2)- (9CI) (CA INDEX NAME)

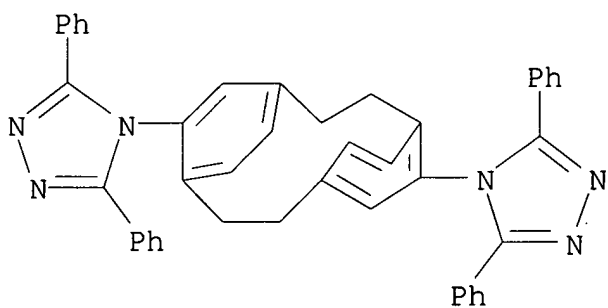


IT 694534-48-0 694534-50-4 694534-51-5

(electron transporters; org. **electroluminescent** devices  
and displays including paracyclophanes)

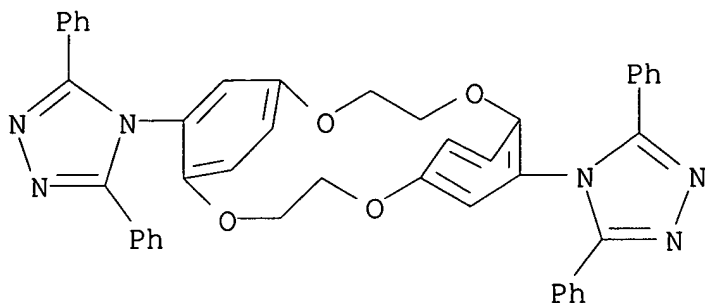
RN 694534-48-0 HCA

CN 4H-1,2,4-Triazole, 4,4'-tricyclo[8.2.2.24,7]hexadeca-4,6,10,12,13,15-  
hexaene-5,11-diylbis[3,5-diphenyl- (9CI) (CA INDEX NAME)



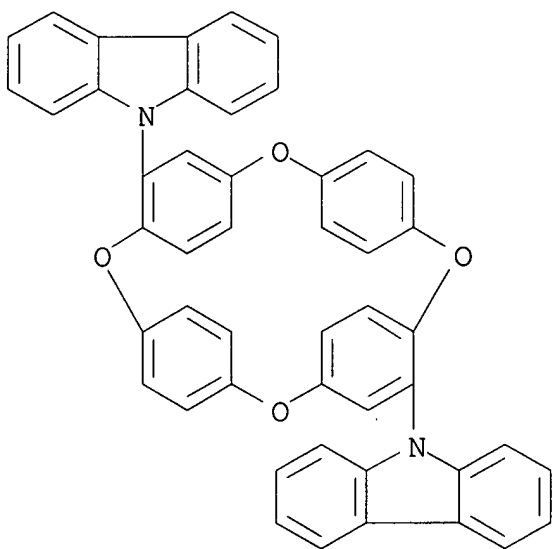
RN 694534-50-4 HCA

CN 4H-1,2,4-Triazole, 4,4'-(2,5,10,13-tetraoxatricyclo[12.2.2.26,9]eico-  
sa-6,8,14,16,17,19-hexaene-7,15-diyl)bis[3,5-diphenyl- (9CI) (CA  
INDEX NAME)



RN 694534-51-5 HCA

CN 9H-Carbazole, 9,9'-(2,7,12,17-tetraoxapentacyclo[16.2.2.23,6.28,11.213,16]octacos-3,5,8,10,13,15,18,20,21,23,25,27-dodecaene-4,14-diyl)bis- (9CI) (CA INDEX NAME)



IT **694534-38-8**

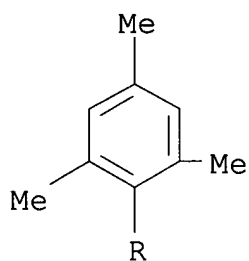
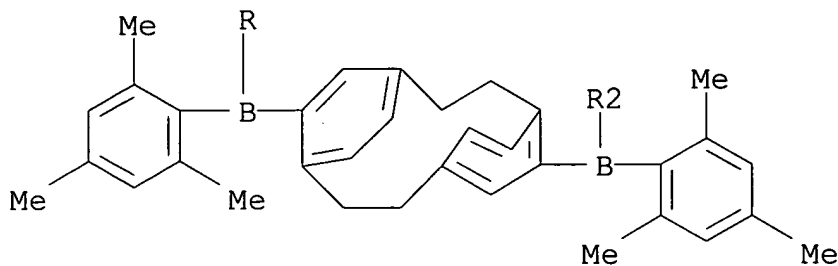
(emitters or electron transporters; org.

**electroluminescent** devices and displays including paracyclophanes)

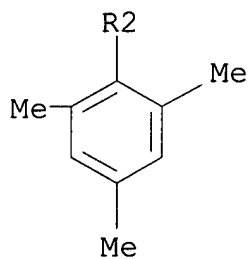
RN 694534-38-8 HCA

CN Borane, tricyclo[8.2.2.24,7]hexadeca-4,6,10,12,13,15-hexaene-5,11-diylbis[bis(2,4,6-trimethylphenyl)- (9CI) (CA INDEX NAME)

PAGE 1-A

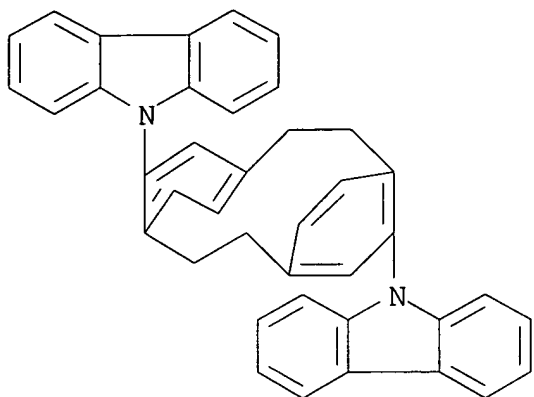


PAGE 2-A



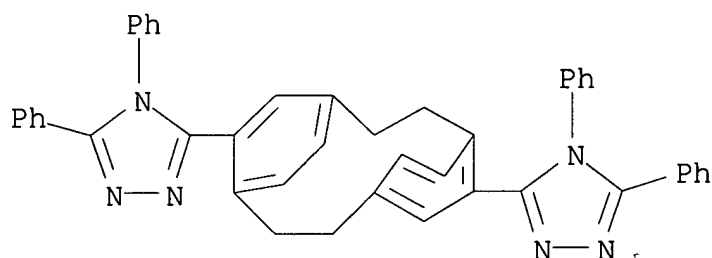
IT 694534-34-4 694534-37-7 694534-39-9  
 694534-43-5 694534-44-6 694534-45-7  
 694534-46-8  
 (emitters; org. **electroluminescent** devices and displays  
 including paracyclophanes)  
 RN 694534-34-4 HCA  
 CN 9H-Carbazole, 9,9'-tricyclo[8.2.2.24,7]hexadeca-4,6,10,12,13,15-  
 hexaene-5,11-diylbis- (9CI) (CA INDEX NAME)





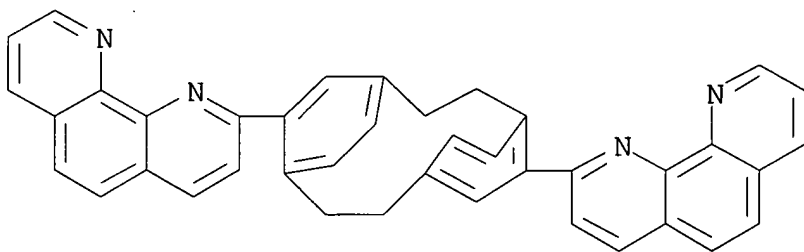
RN 694534-37-7 HCA

CN 4H-1,2,4-Triazole, 3,3'-tricyclo[8.2.2.24,7]hexadeca-4,6,10,12,13,15-hexaene-5,11-diylbis[4,5-diphenyl- (9CI) (CA INDEX NAME)



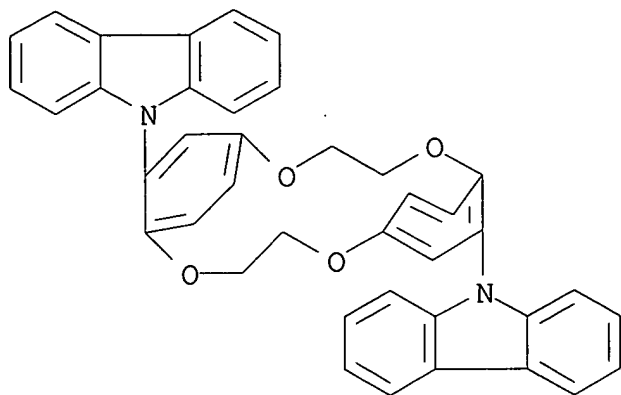
RN 694534-39-9 HCA

CN 1,10-Phenanthroline, 2,2'-tricyclo[8.2.2.24,7]hexadeca-4,6,10,12,13,15-hexaene-5,11-diylbis- (9CI) (CA INDEX NAME)



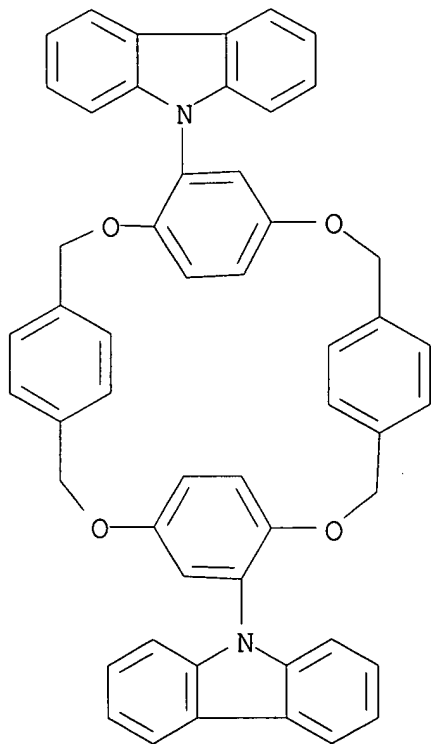
RN 694534-43-5 HCA

CN 9H-Carbazole, 9,9'-(2,5,10,13-tetraoxatricyclo[12.2.2.26,9]eicosa-6,8,14,16,17,19-hexaene-7,15-diyl)bis- (9CI) (CA INDEX NAME)



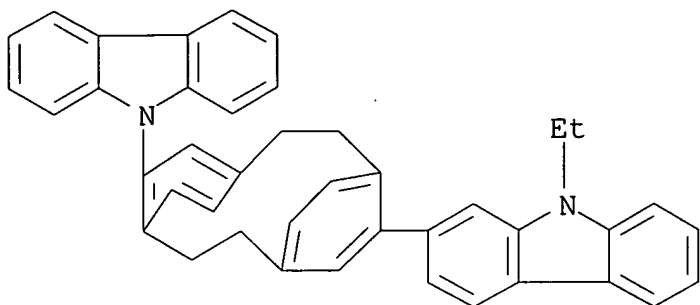
RN 694534-44-6 HCA

CN 9H-Carbazole, 9,9'-(2,9,14,21-tetraoxapentacyclo[20.2.2.24,7.210,13.216,19]dotriaconta-4,6,10,12,16,18,22,24,25,27,29,31-dodecaene-11,23-diyl)bis- (9CI) (CA INDEX NAME)

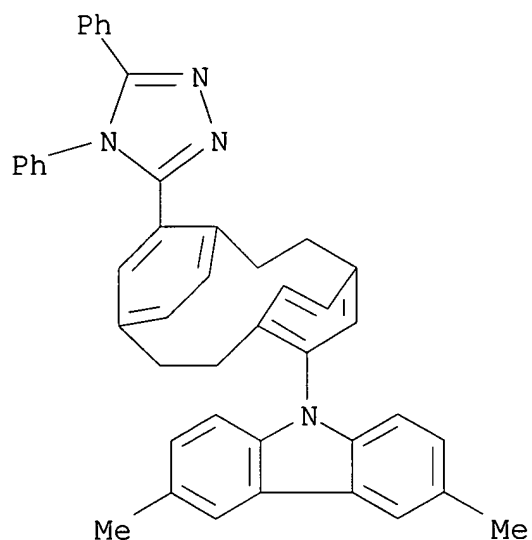


RN 694534-45-7 HCA

CN 9H-Carbazole, 2-[11-(9H-carbazol-9-yl)tricyclo[8.2.2.24,7]hexadeca-4,6,10,12,13,15-hexaen-5-yl]-9-ethyl- (9CI) (CA INDEX NAME)



RN 694534-46-8 HCA  
 CN 9H-Carbazole, 9-[11-(4,5-diphenyl-4H-1,2,4-triazol-3-yl)tricyclo[8.2.2.2.4,7]hexadeca-4,6,10,12,13,15-hexaen-5-yl]-3,6-dimethyl- (9CI) (CA INDEX NAME)



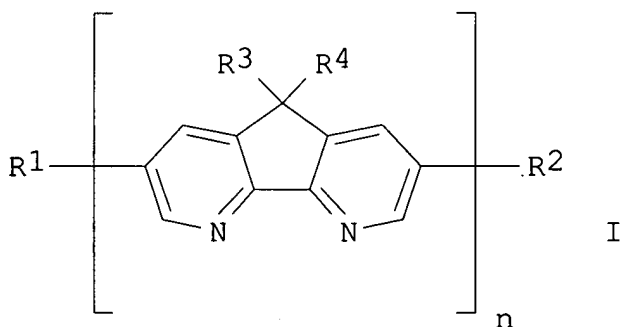
IC ICM H05B033-14  
 ICS C09K011-06  
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
 Section cross-reference(s): 73  
 ST org **electroluminescent** device paracyclophane;  
 paracyclophane org **electroluminescent** display; carbazolyl  
 paracyclophane org **electroluminescent** display  
 IT **Electroluminescent** devices  
 (displays; org. **electroluminescent** devices and displays  
 including paracyclophanes)  
 IT **Luminescent** screens  
 (**electroluminescent**; org.  
**electroluminescent** devices and displays including

- paracyclophanes)
- IT **Electroluminescent** devices  
(org. **electroluminescent** devices and displays including paracyclophanes)
- IT Cyclophanes  
(paracyclophanes; org. **electroluminescent** devices and displays including paracyclophanes)
- IT **94928-86-6 343978-79-0 376367-93-0**  
(dopants in emitter layers; org. **electroluminescent** devices and displays including paracyclophanes)
- IT **694534-48-0 694534-49-1 694534-50-4 694534-51-5**  
(electron transporters; org. **electroluminescent** devices and displays including paracyclophanes)
- IT **694534-38-8**  
(emitters or electron transporters; org. **electroluminescent** devices and displays including paracyclophanes)
- IT **694534-34-4 694534-35-5 694534-36-6 694534-37-7 694534-39-9 694534-40-2 694534-41-3 694534-42-4 694534-43-5 694534-44-6 694534-45-7 694534-46-8 694534-47-9**  
(emitters; org. **electroluminescent** devices and displays including paracyclophanes)

L98 ANSWER 3 OF 15 HCA COPYRIGHT 2005 ACS on STN

140:294505 Organic **electroluminescent** device comprising diazafluorene compound. Suzuki, Koichi; Kasahara, Aki; Kawai, Tatsuhiro; Hasegawa, Toshinori; Okinaka, Keiji; Senoo, Akihiro (Canon Inc., Japan). Jpn. Kokai Tokkyo Koho JP 2004091444 A2 20040325, 41 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2002-258591 20020904.

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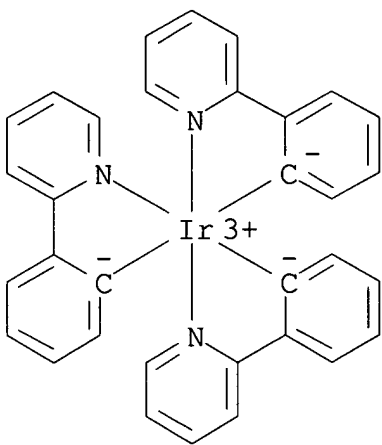


AB The invention relates to an org. **electroluminescent** device comprising diazafluorene compd. represented by I [R1 and R2 = H, alkyl, aryl, etc.; R3 and R4 = H, alkyl, aryl, and heterocyclic; n = 1-10 integer].

IT **94928-86-6**, fac-Tris(2-phenylpyridine)iridium  
(**electroluminescent** material; org.  
**electroluminescent** device comprising diazafluorene compd.)

RN 94928-86-6 HCA

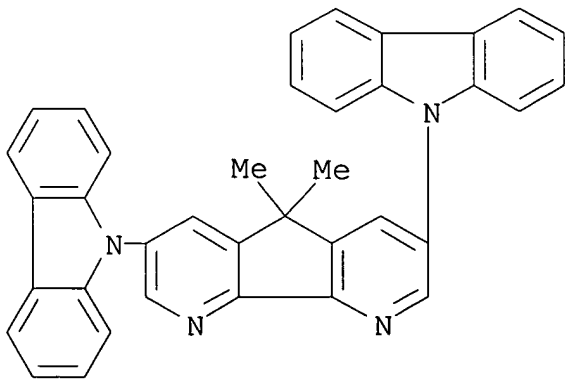
CN Iridium, tris[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]-, (OC-6-22)-(9CI) (CA INDEX NAME)



IT **675600-13-2 675600-14-3 675600-15-4**  
**675600-37-0 675600-46-1**  
(org. **electroluminescent** device comprising  
diazafluorene compd.)

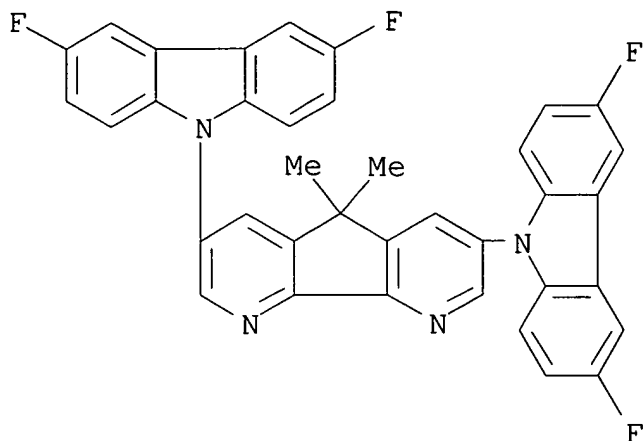
RN 675600-13-2 HCA

CN 5H-Cyclopenta[2,1-b:3,4-b']dipyridine, 3,7-di-9H-carbazol-9-yl-5,5-dimethyl- (9CI) (CA INDEX NAME)



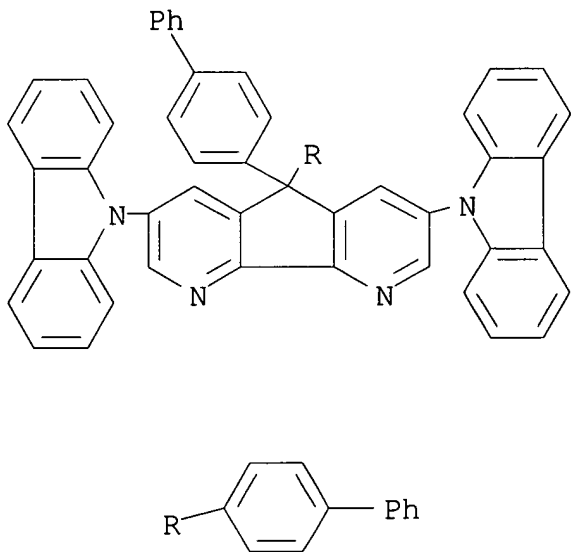
RN 675600-14-3 HCA

CN 5H-Cyclopenta[2,1-b:3,4-b']dipyridine, 3,7-bis(3,6-difluoro-9H-carbazol-9-yl)-5,5-dimethyl- (9CI) (CA INDEX NAME)



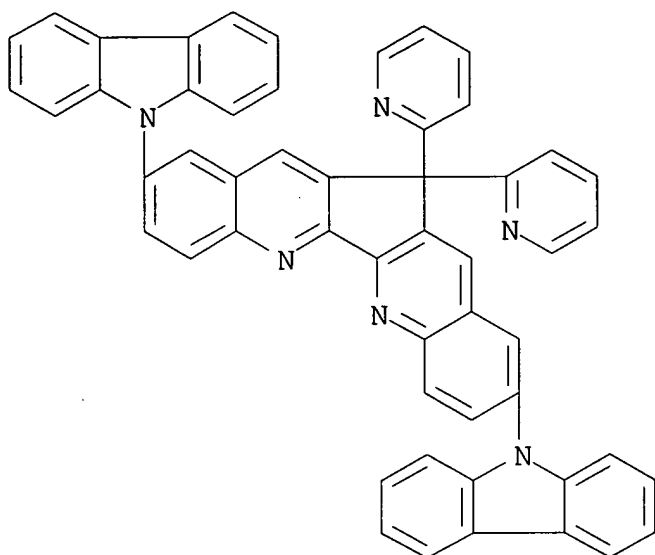
RN 675600-15-4 HCA

CN 5H-Cyclopenta[2,1-b:3,4-b']dipyridine, 5,5-bis([1,1'-biphenyl]-4-yl)-3,7-di-9H-carbazol-9-yl- (9CI) (CA INDEX NAME)



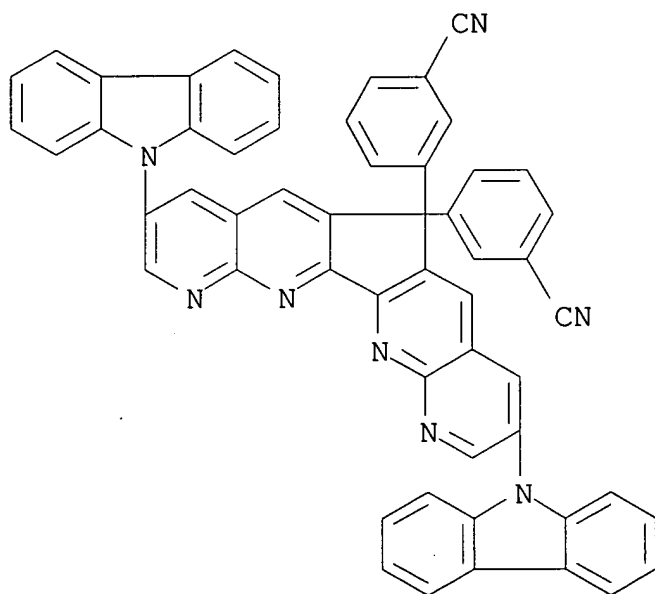
RN 675600-37-0 HCA

CN 12H-Cyclopenta[2,1-b:3,4-b']diquinoline, 2,9-di-9H-carbazol-9-yl-12,12-di-2-pyridinyl- (9CI) (CA INDEX NAME)



RN 675600-46-1 HCA

CN Benzonitrile, 3,3'-(3,9-di-9H-carbazol-9-yl-6H-cyclopenta[2,1-b:3,4-b']di[1,8]naphthyridin-6-ylidene)bis- (9CI) (CA INDEX NAME)

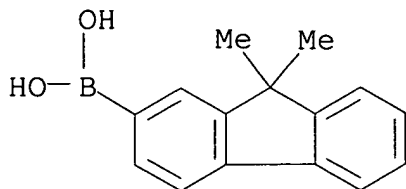


IT 333432-28-3P

(org. **electroluminescent** device comprising  
diazfluorene compd.)

RN 333432-28-3 HCA

CN Boronic acid, (9,9-dimethyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)



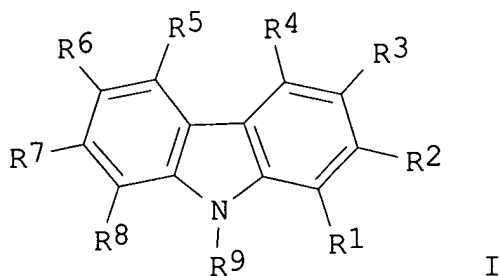
- IC ICM C07D471-04  
ICS C07D471-22; C09K011-06; H05B033-14; H05B033-22
- CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
Section cross-reference(s): 27
- ST org **electroluminescent** device diazafluorene
- IT **Electroluminescent** devices  
(org. **electroluminescent** device comprising diazafluorene compd.)
- IT **94928-86-6**, fac-Tris(2-phenylpyridine)iridium  
(**electroluminescent** material; org. **electroluminescent** device comprising diazafluorene compd.)
- IT 2085-33-8, Al 8q  
(electron transporting material; org. **electroluminescent** device comprising diazafluorene compd.)
- IT 361486-60-4  
(hole transporting material; org. **electroluminescent** device comprising diazafluorene compd.)
- IT 675600-03-0 675600-04-1 675600-05-2 675600-06-3 675600-07-4  
675600-08-5 675600-09-6 675600-10-9 675600-11-0 675600-12-1  
**675600-13-2 675600-14-3 675600-15-4**  
675600-16-5 675600-17-6 675600-18-7 675600-19-8 675600-20-1  
675600-21-2 675600-22-3 675600-23-4 675600-24-5 675600-25-6  
675600-26-7 675600-27-8 675600-28-9 675600-29-0 675600-30-3  
675600-31-4 675600-32-5 675600-33-6 675600-34-7 675600-35-8  
675600-36-9 **675600-37-0** 675600-38-1 675600-39-2  
675600-40-5 675600-41-6 675600-42-7 675600-43-8 675600-44-9  
675600-45-0 **675600-46-1** 675600-47-2 675600-48-3  
675600-49-4  
(org. **electroluminescent** device comprising diazafluorene compd.)
- IT 675599-97-0P 675599-99-2P 675600-02-9P  
(org. **electroluminescent** device comprising diazafluorene compd.)
- IT 74-88-4, Iodomethane, reactions 7553-56-2, Iodine, reactions  
50890-67-0, 4,5-Diazafluorene-9-one 144981-85-1,  
2-Iodo-9,9-dimethylfluorene 675600-00-7  
(org. **electroluminescent** device comprising diazafluorene compd.)



IT 245-37-4P, 5H-Cyclopenta[2,1-b:3,4-b']dipyridine  
**333432-28-3P** 675599-96-9P 675599-98-1P 675600-01-8P  
(org. **electroluminescent** device comprising  
diazfluorene compd.)

L98 ANSWER 4 OF 15 HCA COPYRIGHT 2005 ACS on STN  
140:261489 Organic **electroluminescent** device and display  
apparatus showing improved brightness, light-efficiency, and  
durability. Matsuura, Mitsunobu; Kinoshita, Motoki; Yamada,  
Taketoshi; Kita, Hiroshi (Konica Minolta Holdings Inc., Japan).  
Jpn. Kokai Tokkyo Koho JP 2004079265 A2 20040311, 43 pp.  
(Japanese). CODEN: JKXXAF. APPLICATION: JP 2002-235613 20020813.

GI

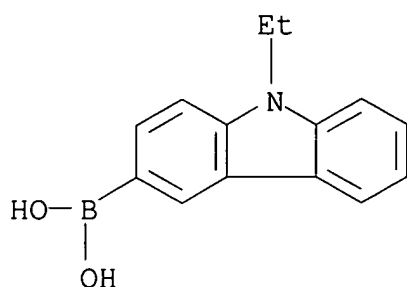


AB The title org. **electroluminescent** display device contains  
a 350-2000 mol. wt. carbazole deriv.(s) represented by I (R1-8 = H,  
alkyl, aryl, alkyloxy, aryloxy, alkylthio, arylthio, amino,  
alkylamino, arylamino, heterocyclyl, silyl; R9 = alkyl) as a host  
compd. The org. **electroluminescent** display device  
contains a phosphor compd. dopant selected from Ir compd., Os  
compd., and Pt compd., preferably Ir compd.

IT **669072-93-9P**  
(carbazole host compd. synthesis; org. **electroluminescent**  
display showing improved brightness, light-efficiency, and  
durability)

RN 669072-93-9 HCA

CN Boronic acid, (9-ethyl-9H-carbazol-3-yl)- (9CI) (CA INDEX NAME)

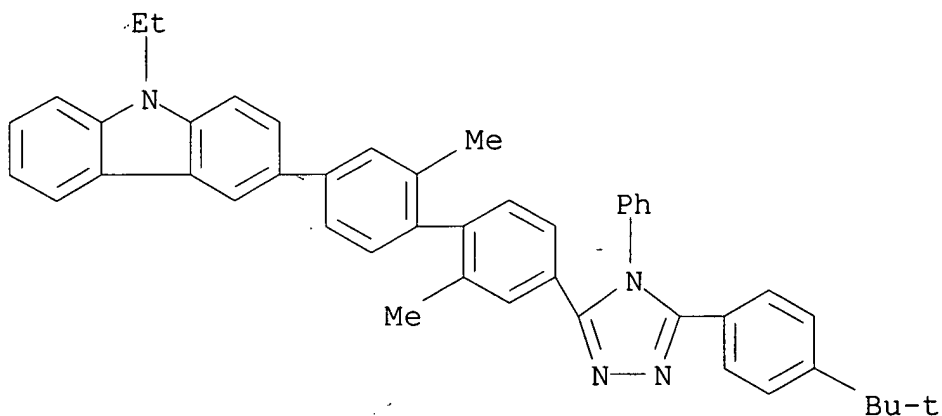


IT 669072-52-0 669072-72-4 669072-86-0

(carbazole host compd.; org. **electroluminescent** display  
showing improved brightness, light-efficiency, and durability)

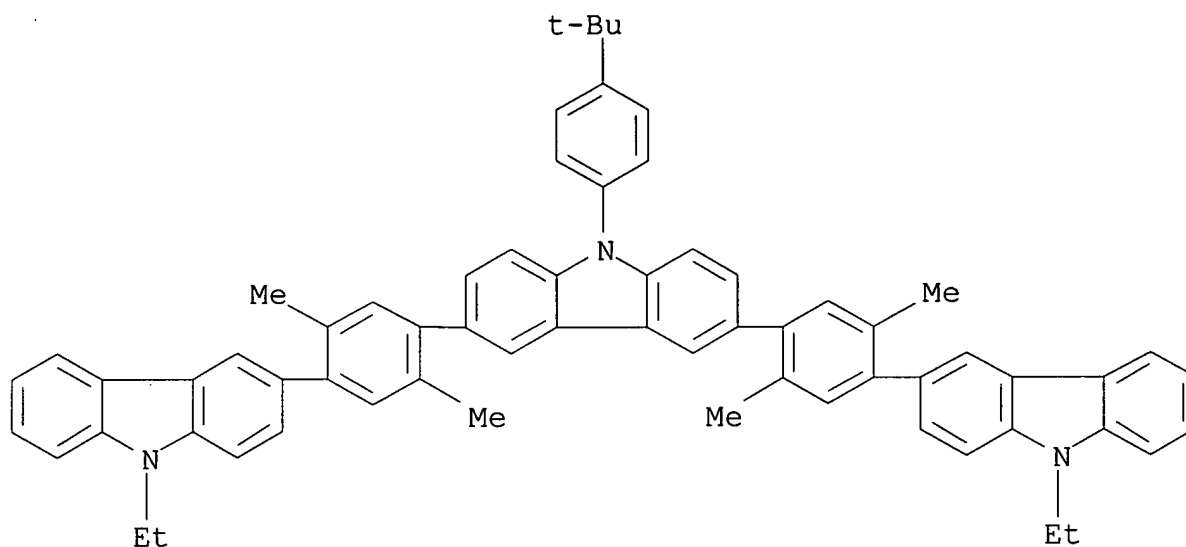
RN 669072-52-0 HCA

CN 9H-Carbazole, 3-[4'-[5-[4-(1,1-dimethylethyl)phenyl]-4-phenyl-4H-  
1,2,4-triazol-3-yl]-2,2'-dimethyl[1,1'-biphenyl]-4-yl]-9-ethyl-  
(9CI) (CA INDEX NAME)



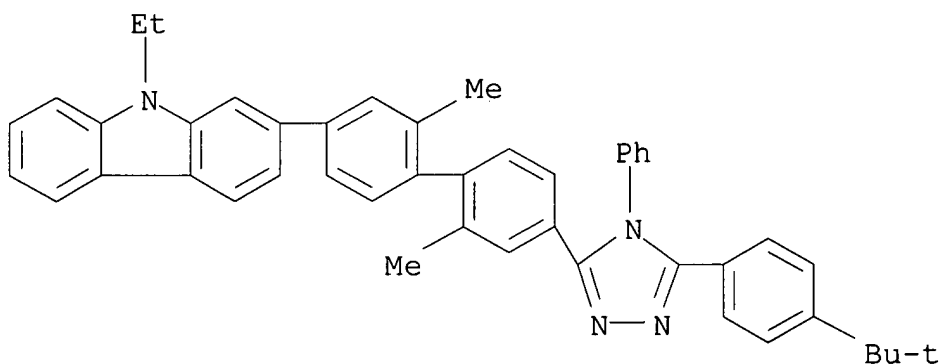
RN 669072-72-4 HCA

CN 9H-Carbazole, 9-[4-(1,1-dimethylethyl)phenyl]-3,6-bis[4-(9-ethyl-9H-  
carbazol-3-yl)-2,5-dimethylphenyl]- (9CI) (CA INDEX NAME)



RN 669072-86-0 HCA

CN 9H-Carbazole, 2-[4'-(5-[4-(1,1-dimethylethyl)phenyl]-4-phenyl-4H-1,2,4-triazol-3-yl)-2,2'-dimethyl[1,1'-biphenyl]-4-yl]-9-ethyl- (9CI) (CA INDEX NAME)

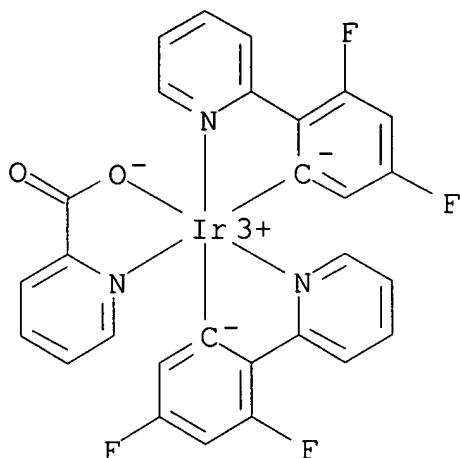


IT 376367-93-0

(phosphor dopant; org. **electroluminescent** display showing improved brightness, light-efficiency, and durability)

RN 376367-93-0 HCA

CN Iridium, bis[3,5-difluoro-2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C] (2-pyridinecarboxylato-.kappa.N1,.kappa.O2)- (9CI) (CA INDEX NAME)



- IC ICM H05B033-14  
ICS C09K011-06
- CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
Section cross-reference(s): 73
- ST org **electroluminescent** display carbazole host phosphor dopant
- IT **Electroluminescent** devices  
(displays; org. **electroluminescent** device and display app. showing improved brightness, light-efficiency, and durability)
- IT **Luminescent** screens  
(**electroluminescent**; org. **electroluminescent** device and display app. showing improved brightness, light-efficiency, and durability)
- IT 121-43-7, Trimethoxyboron 132-32-1, 3-Amino-9-ethylcarbazole 1074-24-4, 1,4-Dibromo-2,5-dimethylbenzene 7681-11-0, Potassium iodide, reactions  
(carbazole host compd. synthesis; org. **electroluminescent** display showing improved brightness, light-efficiency, and durability)
- IT 50668-21-8P, 3-Iodo-9-ethylcarbazole **669072-93-9P**  
(carbazole host compd. synthesis; org. **electroluminescent** display showing improved brightness, light-efficiency, and durability)
- IT 669072-95-1P  
(carbazole host compd. synthesis; org. **electroluminescent** display showing improved brightness, light-efficiency, and durability)
- IT 20466-00-6 25557-82-8 669072-31-5 669072-32-6 669072-34-8  
669072-36-0 669072-39-3 669072-42-8 669072-44-0 669072-47-3

669072-48-4 669072-50-8 **669072-52-0** 669072-54-2  
 669072-57-5 669072-60-0 669072-63-3 669072-66-6 669072-69-9  
**669072-72-4** 669072-75-7 669072-78-0 669072-80-4  
 669072-83-7 **669072-86-0** 669072-88-2 669072-91-7  
 669072-92-8

(carbazole host compd.; org. **electroluminescent** display  
 showing improved brightness, light-efficiency, and durability)

IT **376367-93-0**

(phosphor dopant; org. **electroluminescent** display  
 showing improved brightness, light-efficiency, and durability)

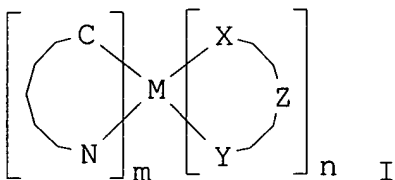
L98 ANSWER 5 OF 15 HCA COPYRIGHT 2005 ACS on STN

140:225477 Organometallic phosphorescent materials with anionic ligand  
 and **electroluminescent** devices employing the

phosphorescent materials. Thompson, Mark E.; Djurovich, Peter I.;  
 Li, Jian (The University of Southern California, USA). PCT Int.

Appl. WO 2004017043 A2 20040226, 42 pp. DESIGNATED STATES: W: AE,  
 AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR,  
 CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU,  
 ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV,  
 MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC,  
 SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU,  
 ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES,  
 FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD,  
 TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2003-US25936  
 20030818. PRIORITY: US 2002-2002/PV404087 20020816.

GI



AB Emissive phosphorescent organometallic compds. that produce  
**electroluminescence** and org. **light**  
**emitting** devices employing such emissive phosphorescent  
 organometallic compds. are provided, where the organometallic  
 compds. are described by the general formula (I), where M is a metal  
 with an at. wt. > 40, the part to the left of M is a cyclometallated  
 ligand, the part to the right of M is anionic; X and Y are each an  
 independently selected heteroatom-contg. group or heterocycle, Z is  
 a divalent linker, m and n are integers selected from 1 and 2 where  
 the sum of n + m is 2 or 3. More specifically the present invention

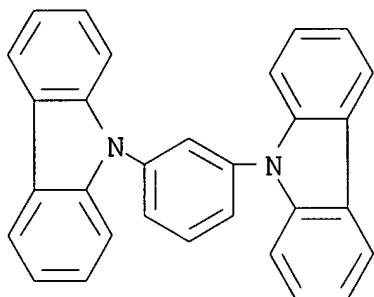
is directed to novel primarily non-emitting ligands which produce a blue shift in **emitted light** when assocd. with a cyclometallated ligand.

IT **550378-78-4**

(doped emissive layer; organometallic phosphorescent materials with anionic ligand and **electroluminescent** devices employing phosphorescent materials and)

RN 550378-78-4 HCA

CN 9H-Carbazole, 9,9'-(1,3-phenylene)bis- (9CI) (CA INDEX NAME)



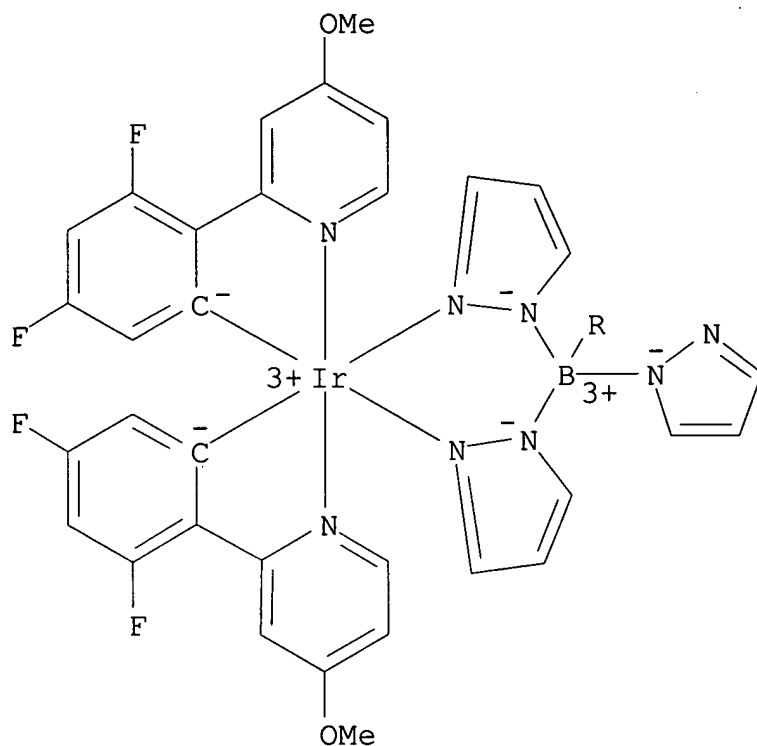
IT **664374-01-0P 664374-03-2P**

(organometallic phosphorescent materials with anionic ligand and **electroluminescent** devices employing phosphorescent materials)

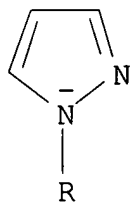
RN 664374-01-0 HCA

CN Iridium, bis[3,5-difluoro-2-(4-methoxy-2-pyridinyl-.kappa.N)phenyl-.kappa.C][tetrakis(1H-pyrazolato-.kappa.N1)borato(1)-.kappa.N2,.kappa.N2']- (9CI) (CA INDEX NAME)

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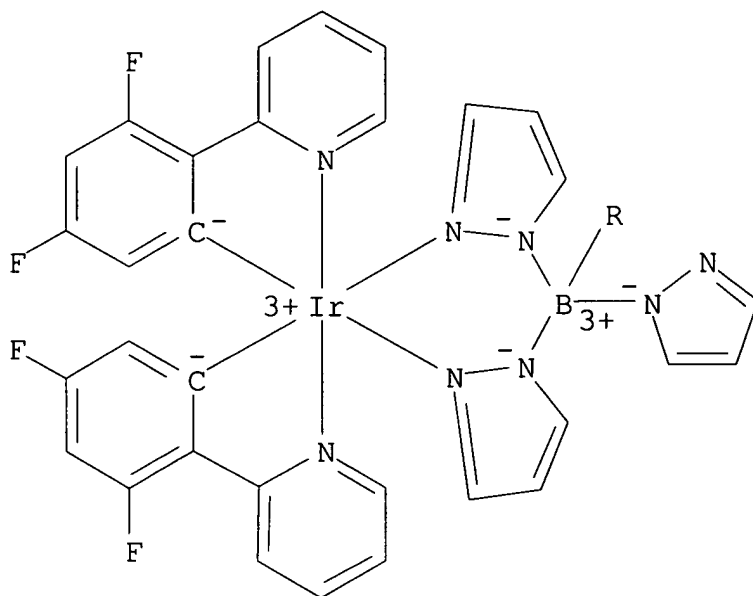


PAGE 2-A

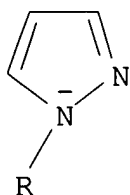


RN 664374-03-2 HCA  
 CN Iridium, bis[3,5-difluoro-2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C][tetrakis(1H-pyrazolato-.kappa.N1)borato(1-)-.kappa.N2,.kappa.N2']-, (OC-6-33)- (9CI) (CA INDEX NAME)

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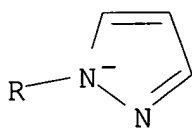
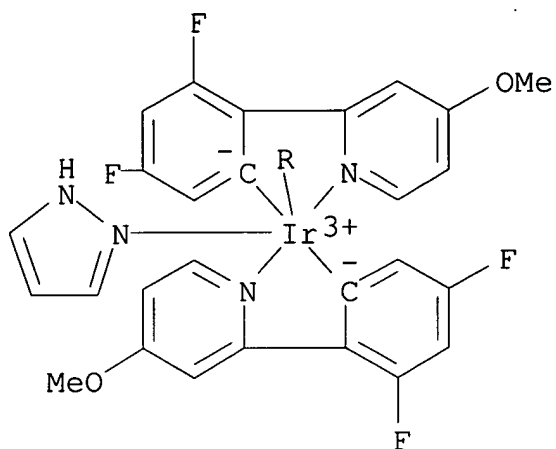


IT **664374-02-1P 664374-04-3P**  
 (organometallic phosphorescent materials with anionic ligand and  
**electroluminescent** devices employing phosphorescent  
 materials)

RN 664374-02-1 HCA

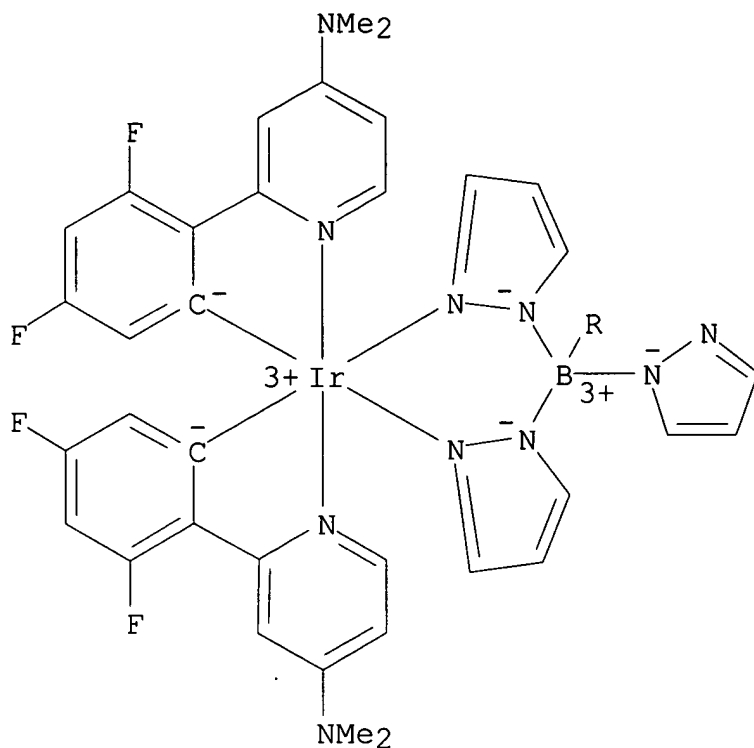
CN Iridium, bis[3,5-difluoro-2-(4-methoxy-2-pyridinyl-.kappa.N)phenyl-  
 .kappa.C] (1H-pyrazolato-.kappa.N1) (1H-pyrazole-.kappa.N2)- (9CI)  
 (CA INDEX NAME)



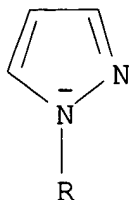


RN 664374-04-3 HCA  
 CN Iridium, bis[2-[4-(dimethylamino)-2-pyridinyl-.kappa.N]-3,5-difluorophenyl-.kappa.C][tetrakis(1H-pyrazolato-.kappa.N1)borato(1-)-.kappa.N2,.kappa.N2']- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A

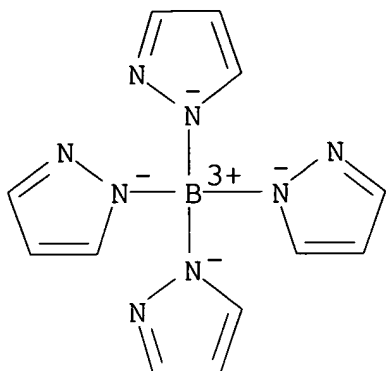


IT 14782-58-2 391611-77-1 664374-05-4  
664374-06-5

(organometallic phosphorescent materials with anionic ligand and  
**electroluminescent** devices employing phosphorescent  
materials)

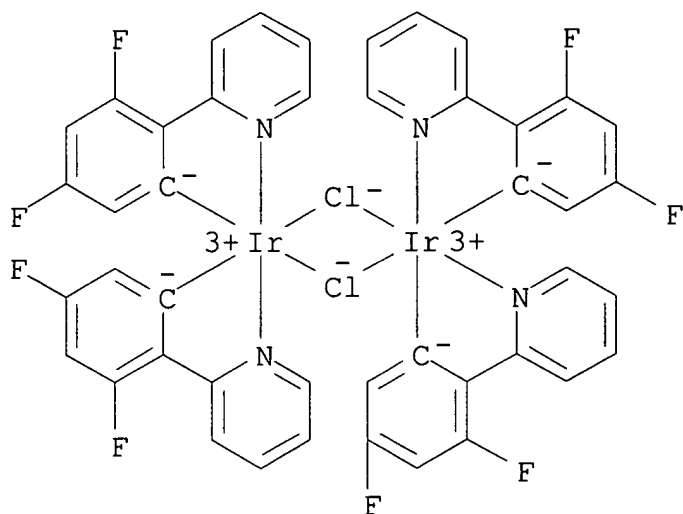
RN 14782-58-2 HCA

CN Borate(1-), tetrakis(1H-pyrazolato-.kappa.N1)-, potassium (9CI) (CA  
INDEX NAME)



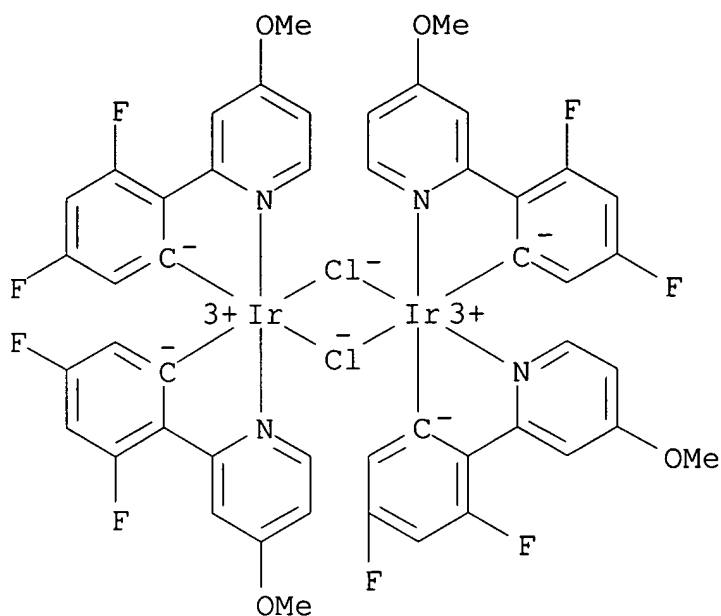
RN 391611-77-1 HCA

CN Iridium, di- $\mu$ -chlorotetrakis[3,5-difluoro-2-(2-pyridinyl- $\kappa$ N)phenyl- $\kappa$ C]di- (9CI) (CA INDEX NAME)



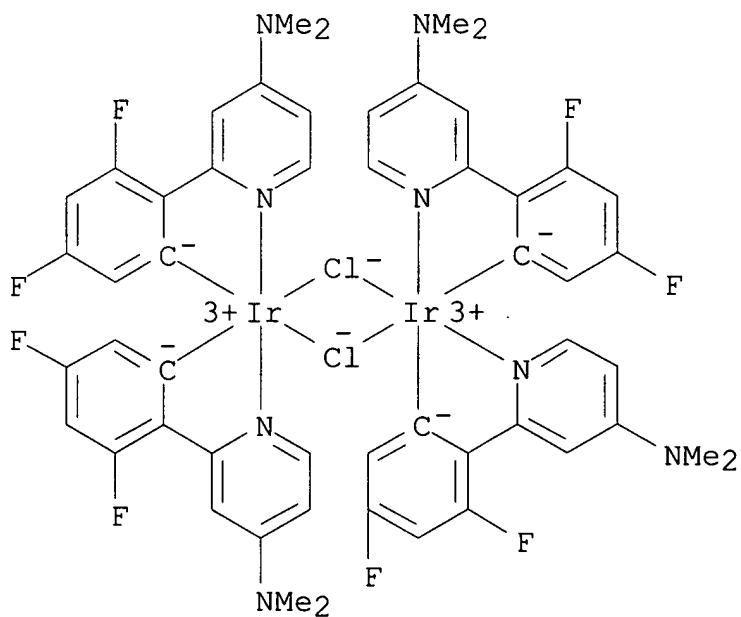
RN 664374-05-4 HCA

CN Iridium, di- $\mu$ -chlorotetrakis[3,5-difluoro-2-(4-methoxy-2-pyridinyl- $\kappa$ N)phenyl- $\kappa$ C]di- (9CI) (CA INDEX NAME)



RN 664374-06-5 HCA

CN Iridium, di-.mu.-chlorotetrakis[2-[4-(dimethylamino)-2-pyridinyl-.kappa.N]-3,5-difluorophenyl-.kappa.C]di- (9CI) (CA INDEX NAME)



IC ICM G01N

CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 76, 78

- ST organometallic phosphorescent material **electroluminescent** device anionic ligand
- IT **Electroluminescent** devices  
(electrophosphorescent; organometallic phosphorescent materials with anionic ligand and **electroluminescent** devices employing phosphorescent materials)
- IT Organometallic compounds  
(heavy metal; organometallic phosphorescent materials with anionic ligand and **electroluminescent** devices employing phosphorescent materials)
- IT Phosphorescent substances  
(organometallic phosphorescent materials with anionic ligand and **electroluminescent** devices employing phosphorescent materials)
- IT Coordination compounds  
(polynuclear; organometallic phosphorescent materials with anionic ligand and **electroluminescent** devices employing phosphorescent materials)
- IT 146162-54-1, BAlq  
(BAlq; organometallic phosphorescent materials with anionic ligand and **electroluminescent** devices employing phosphorescent materials and)
- IT **550378-78-4**  
(doped emissive layer; organometallic phosphorescent materials with anionic ligand and **electroluminescent** devices employing phosphorescent materials and)
- IT **664374-01-0P 664374-03-2P**  
(organometallic phosphorescent materials with anionic ligand and **electroluminescent** devices employing phosphorescent materials)
- IT 7439-88-5D, Iridium, compds. 7439-92-1D, Lead, compds.  
7440-04-2D, Osmium, compds. 7440-05-3D, Palladium, compds.  
7440-06-4D, Platinum, compds. 7440-15-5D, Rhenium, compds.  
7440-16-6D, Rhodium, compds. 7440-22-4D, Silver, compds.  
7440-28-0D, Thallium, compds. 7440-31-5D, Tin, compds.  
7440-36-0D, Antimony, compds. 7440-57-5D, Gold, compds.  
7440-69-9D, Bismuth, compds. 7440-74-6D, Indium, compds.  
13494-80-9D, Tellurium, compds.  
(organometallic phosphorescent materials with anionic ligand and **electroluminescent** devices employing phosphorescent materials)
- IT **664374-02-1P 664374-04-3P**  
(organometallic phosphorescent materials with anionic ligand and **electroluminescent** devices employing phosphorescent materials)
- IT 124-41-4, Methoxy sodium 288-13-1, Pyrazole 2923-28-6  
**14782-58-2 391611-77-1 664374-05-4**

**664374-06-5**

(organometallic phosphorescent materials with anionic ligand and **electroluminescent** devices employing phosphorescent materials)

IT 147-14-8, Copper phthalocyanine 123847-85-8, 4,4'-Bis[N-(1-naphthyl)-N-phenylamino]biphenyl  
(organometallic phosphorescent materials with anionic ligand and **electroluminescent** devices employing phosphorescent materials and)

L98 ANSWER 6 OF 15 HCA COPYRIGHT 2005 ACS on STN

140:21134 Phosphorescent **light-emitting** component comprising organic layers. Qin, Dashan; Zhou, Xiang; Blochwitz-Nimoth, Jan; Pfeiffer, Martin (Novaled G.m.b.H., Germany).  
PCT Int. Appl. WO 2003100880 A2 20031204, 32 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (German). CODEN: PIXXD2. APPLICATION: WO 2003-DE1659 20030522. PRIORITY: DE 2002-10224021 20020524.

AB **Light-emitting** devices comprising org. layers with emitting triplet excitonic states (phosphorescent light) comprising a hole-injecting contact (**anode**), .gtoreq.1 hole-injecting and transporting layer, a layer system in the **light emission** zone, .gtoreq.1 electron-transporting and injecting layer, and an electron-injecting contact (**cathode**) are described in which the **light -emitting** zone consists of .gtoreq.1 heterojunctions (e.g., arranged in a row) made of materials A and B (ABAB...) which form staggered type II interfaces; one material (A) exhibits hole-transporting or bipolar transport characteristics and the other material (B) exhibits electron-transporting or bipolar transport characteristics and .gtoreq.1 of the materials is mixed with a triplet-emitter-dopant which is able to efficiently convert its triplet excitonic energy into light. Structure including heterojunctions made from addnl. materials (e.g., ABCD structures, where C and D are different materials with similar properties to A and B, resp.) are also described.

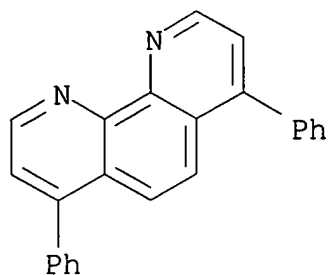
IT **1662-01-7**, Bathophenanthroline **4733-39-5**, BCP  
**139092-78-7**

(phosphorescent org. **light-emitting** devices using heterojunctions with staggered type II interfaces)

RN 1662-01-7 HCA

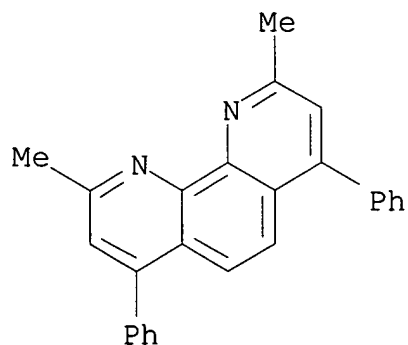
CN 1,10-Phenanthroline, 4,7-diphenyl- (6CI, 7CI, 8CI, 9CI) (CA INDEX

NAME)



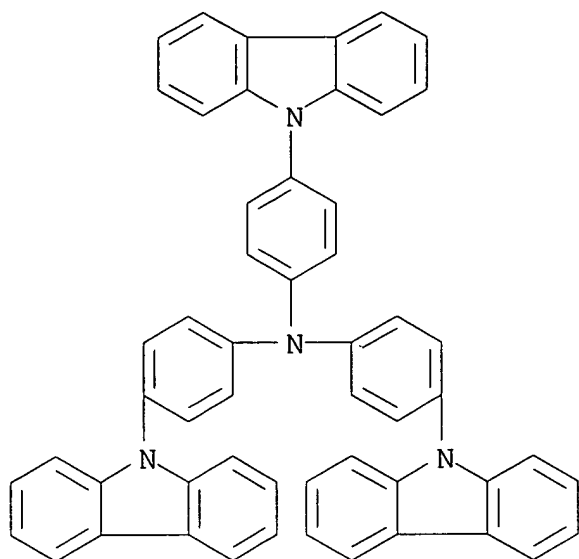
RN 4733-39-5 HCA

CN 1,10-Phenanthroline, 2,9-dimethyl-4,7-diphenyl- (6CI, 7CI, 8CI, 9CI)  
(CA INDEX NAME)

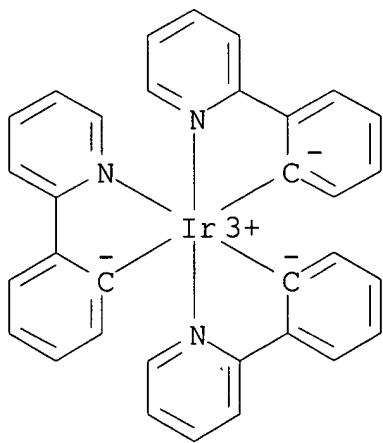


RN 139092-78-7 HCA

CN Benzenamine, 4-(9H-carbazol-9-yl)-N,N-bis[4-(9H-carbazol-9-yl)phenyl]- (9CI) (CA INDEX NAME)



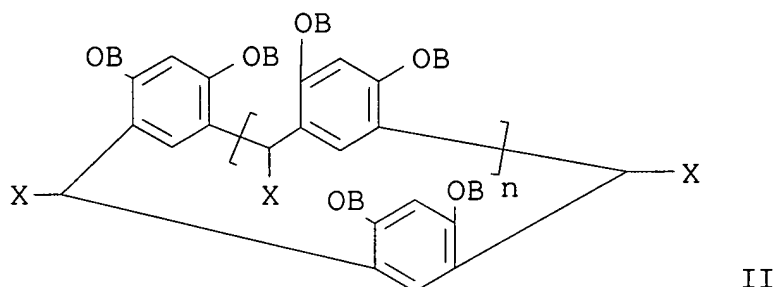
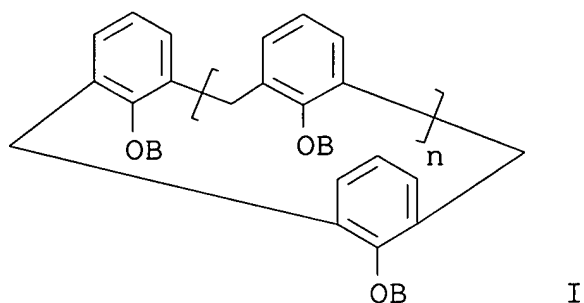
IT **94928-86-6**, fac-Tris(2-phenylpyridine)iridium  
 (phosphorescent org. **light-emitting** devices  
 using heterojunctions with staggered type II interfaces)  
 RN 94928-86-6 HCA  
 CN Iridium, tris[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]-, (OC-6-22)-  
 (9CI) (CA INDEX NAME)



IC ICM H01L051-20  
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related  
 Properties)  
 Section cross-reference(s): 76  
 ST phosphorescent org **light emitting** device; org  
**light emitting** device heterojunction staggered  
 type II interface



- IT **Electroluminescent** devices  
(org.; phosphorescent org. **light-emitting**  
devices using heterojunctions with staggered type II interfaces)
- IT Semiconductor heterojunctions  
(phosphorescent org. **light-emitting** devices  
using heterojunctions with staggered type II interfaces)
- IT **1662-01-7**, Bathophenanthroline 2085-33-8,  
Tris(8-hydroxyquinolinato)aluminum **4733-39-5**, BCP  
124729-98-2, MTDATA **139092-78-7**  
(phosphorescent org. **light-emitting** devices  
using heterojunctions with staggered type II interfaces)
- IT 29261-33-4, F4-TCNQ **94928-86-6**, fac-Tris(2-  
phenylpyridine)iridium  
(phosphorescent org. **light-emitting** devices  
using heterojunctions with staggered type II interfaces)
- L98 ANSWER 7 OF 15 HCA COPYRIGHT 2005 ACS on STN  
139:371613 **Light-emitting** compositions containing  
calixarenes or calixresorcinarenes suitable for preparation of  
**electroluminescent** devices. Takahashi, Naoto; Hyakuta,  
Junji; Kawabata, Yuichiro (Tokuyama Corp., Japan). Jpn. Kokai  
Tokkyo Koho JP 2003313546 A2 20031106, 38 pp. (Japanese). CODEN:  
JKXXAF. APPLICATION: JP 2002-122730 20020424.
- GI



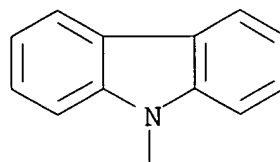
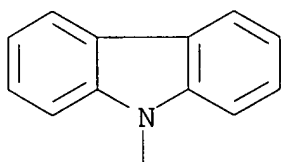
AB The compns. contain 0.1-90 wt.% calixarenes or calixresorcinarenes having **light-emitting** org. groups or charge-transferring org. groups and 10-99.9 wt.% vinylcarbazole. The preferable structures for calixarenes or calixresorcinarenes are A substituted on each benzene ring of I or II (A, B, X = H, halogen, alkyl, aryl, alkoxy with  $\text{gtoreq.1}$  of A, B, and X being  $\text{YmZ}$ ; Y = bivalent org. group; Z = **light-emitting** org. group, charge-transferring org. group; m = 0, 1; n = integer of 1-18).

IT **546633-06-1P 547735-95-5P**  
(**light-emitting** calixarene or calixresorcinarene compns. for **electroluminescent** devices)

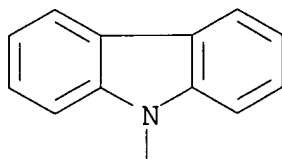
RN 546633-06-1 HCA

CN 9H-Carbazole, 9,9',9'',9''',9'''',9'''''-  
(73,74,75,76,77,78,79,80,81,82,83,84-dodecapropoxytridecacyclo[67.3.1.13,7.19,13.115,19.121,25.127,31.133,37.139,43.145,49.151,55.157,61.163,67]tetraoctaconta-1(73),3,5,7(84),9,11,13(83),15,17,19(82),21,23,25(81),27,29,31(80),33,35,37(79),39,41,43(78),45,47,49(77),51,53,55(76),57,59,61(75),63,65,67(74),69,71-hexatriacontaene-5,17,29,41,53,65-hexayl)hexakis- (9CI) (CA INDEX NAME)

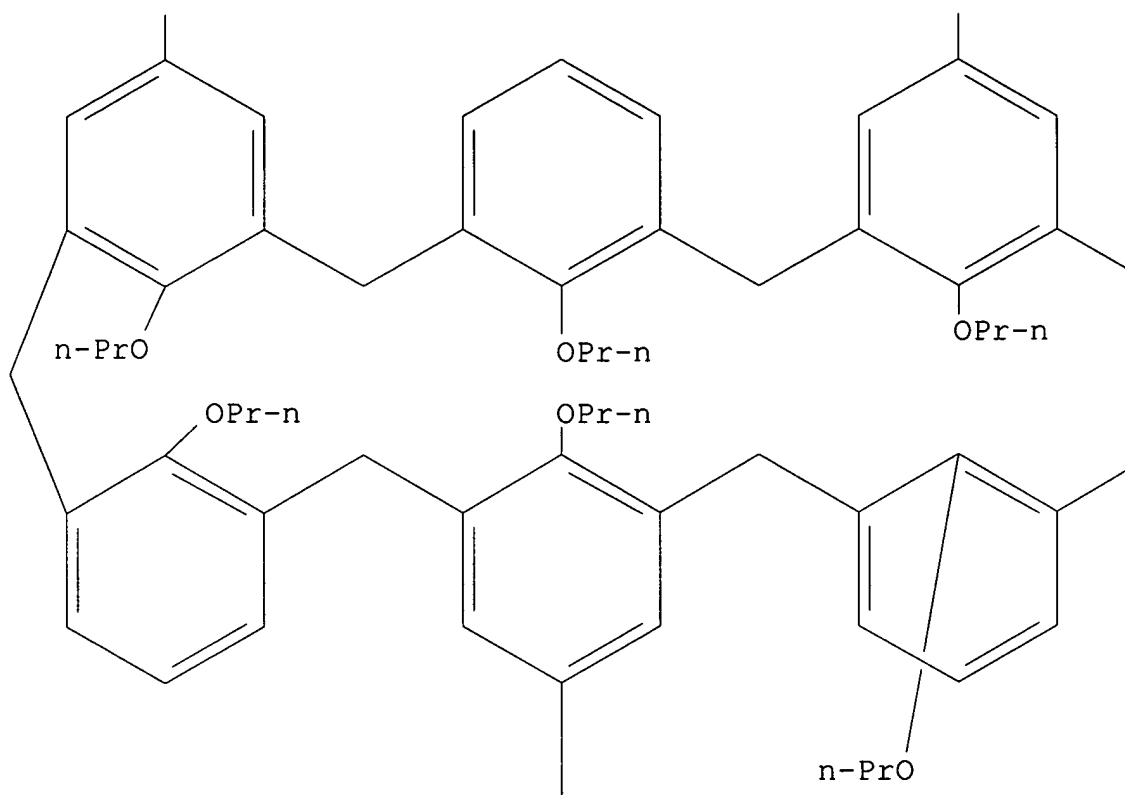
PAGE 1-A



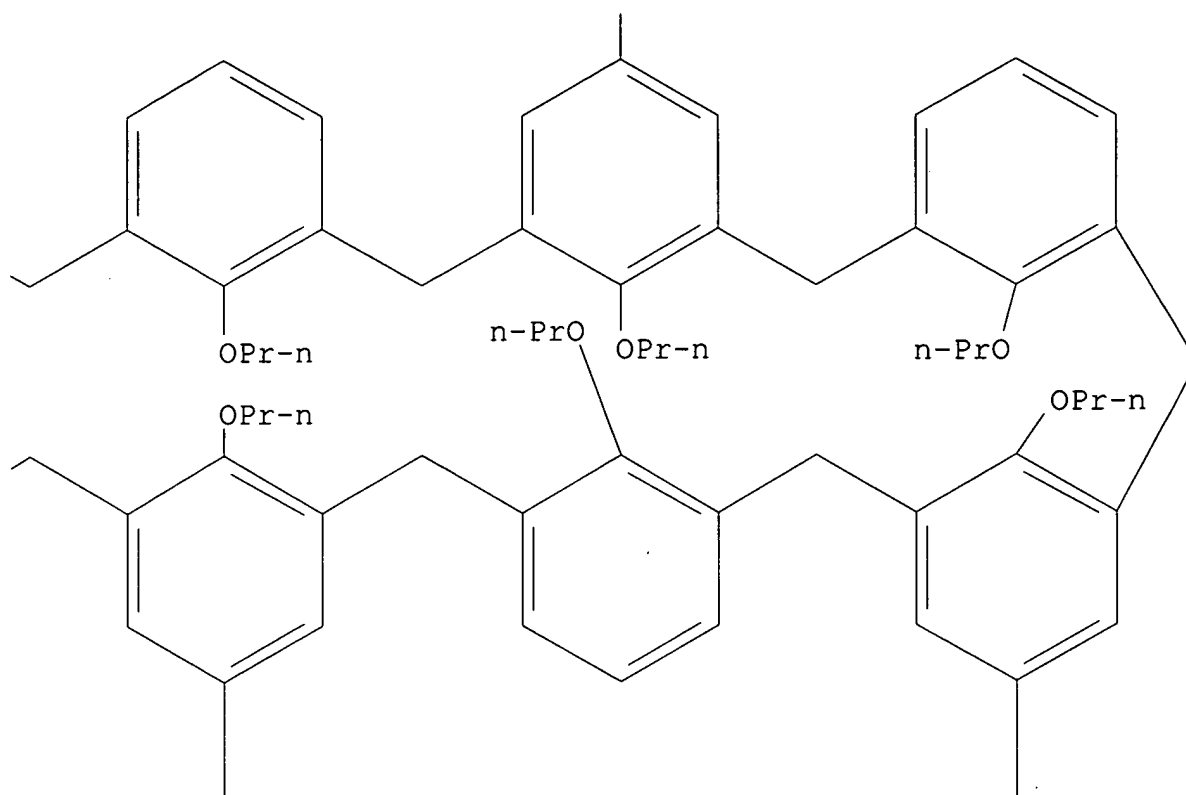
PAGE 1-B



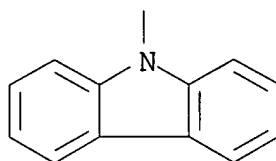
PAGE 2-A



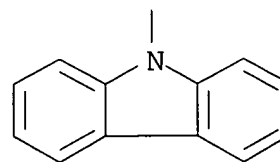
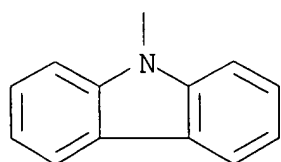
PAGE 2-B



PAGE 3-A



PAGE 3-B



CN Iridium, [4-[2-(37,38,39,40,41,42-hexamethoxyheptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),3,35-octadecaen-5-yl)ethenyl]-2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]bis[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]- (9CI) (CA INDEX NAME)

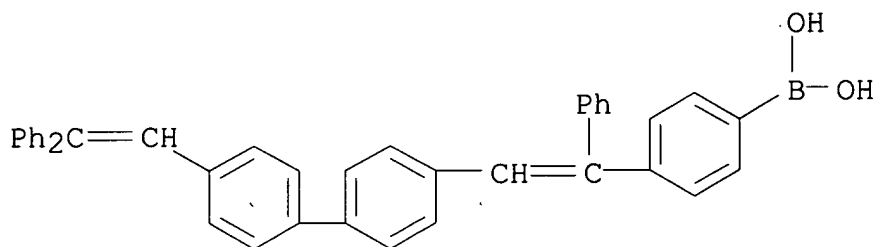
\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IT 546630-93-7 546630-99-3 546631-07-6  
546631-16-7 546631-23-6 546631-37-2  
546631-48-5 546631-54-3 546631-64-5  
546631-73-6 546631-79-2 547735-92-2  
547735-94-4

(light-emitting calixarene or  
calixresorcinarene comps. for electroluminescent  
devices)

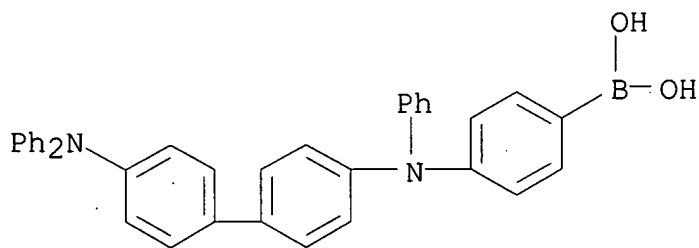
RN 546630-93-7 HCA

CN Boronic acid, [4-[2-[4'-(2,2-diphenylethenyl)[1,1'-biphenyl]-4-yl]-1-phenylethenyl]phenyl]- (9CI) (CA INDEX NAME)



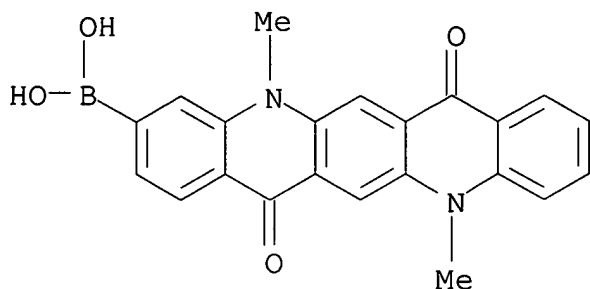
RN 546630-99-3 HCA

CN Boronic acid, [4-[[4'-(diphenylamino)[1,1'-biphenyl]-4-yl]phenylamino]phenyl]- (9CI) (CA INDEX NAME)



RN 546631-07-6 HCA

CN Boronic acid, (5,7,12,14-tetrahydro-5,12-dimethyl-7,14-dioxoquino[2,3-b]acridin-3-yl)- (9CI) (CA INDEX NAME)



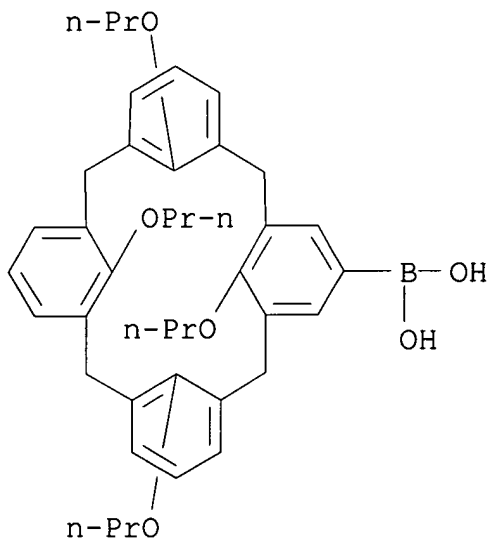
RN 546631-16-7 HCA

CN Boronic acid, (37,38,39,40,41,42-hexamethoxyheptacyclo[31.3.1.13,7.19,13.115,19.121,15.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene-5,17,29-triyl)tris- (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 546631-23-6 HCA

CN Boronic acid, (25,26,27,28-tetrapropoxypentacyclo[19.3.1.13,7.19,13.115,19]octacos-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaen-5-yl)- (9CI) (CA INDEX NAME)



RN 546631-37-2 HCA

CN Boronic acid, (37,38,39,40,41,42-hexamethoxyheptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaen-5-yl)- (9CI) (CA INDEX NAME)

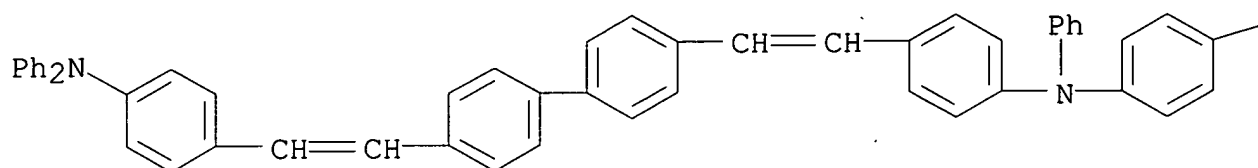
\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 546631-48-5 HCA

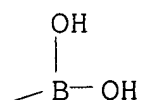


CN Boronic acid, [4-[[4-[2-[4'-[2-[4-(diphenylamino)phenyl]ethenyl]][1,1'-biphenyl]-4-yl]ethenyl]phenyl]phenylamino]phenyl]- (9CI) (CA INDEX NAME)

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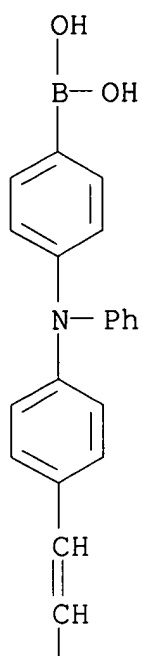
PAGE 1-B



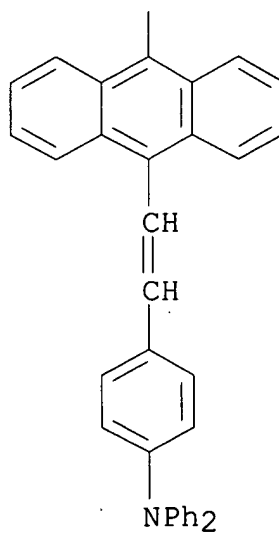
RN 546631-54-3 HCA

CN Boronic acid, [4-[[4-[2-[10-[2-[4-(diphenylamino)phenyl]ethenyl]-9-anthracenyl]ethenyl]phenyl]phenylamino]phenyl]- (9CI) (CA INDEX NAME)

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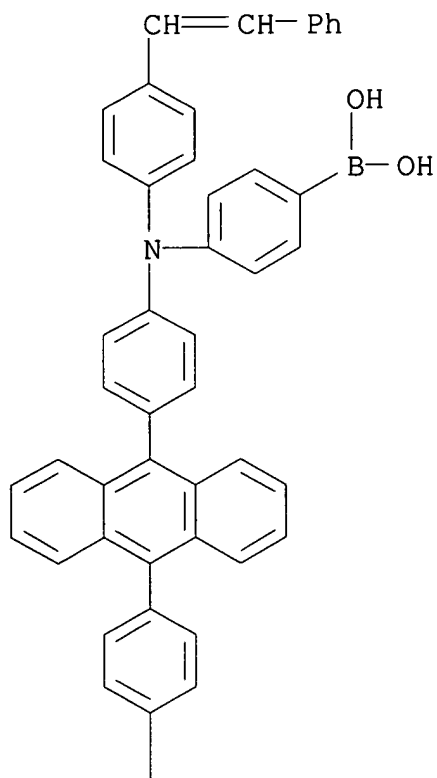


PAGE 2-A

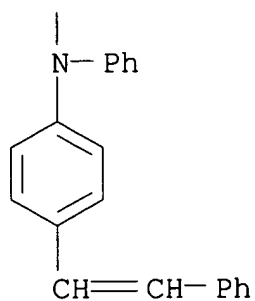


RN 546631-64-5 HCA  
 CN Boronic acid, [4-[[4-(2-phenylethenyl)phenyl][4-[10-[4-[phenyl[4-(2-phenylethenyl)phenyl]amino]phenyl]-9-anthracenyl]phenyl]amino]phenyl]- (9CI) (CA INDEX NAME)

PAGE 1-A

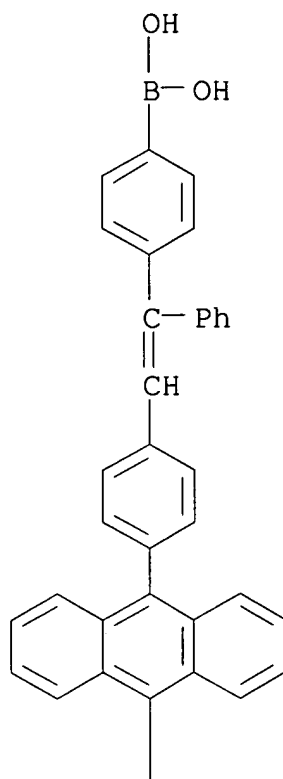


PAGE 2-A

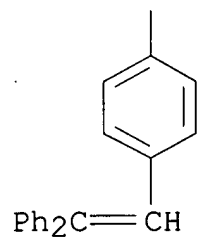


RN 546631-73-6 HCA  
CN Boronic acid, [4-[2-[4-[10-[4-(2,2-diphenylethenyl)phenyl]-9-anthracenyl]phenyl]-1-phenylethenyl]phenyl]- (9CI) (CA INDEX NAME)

PAGE 1-A

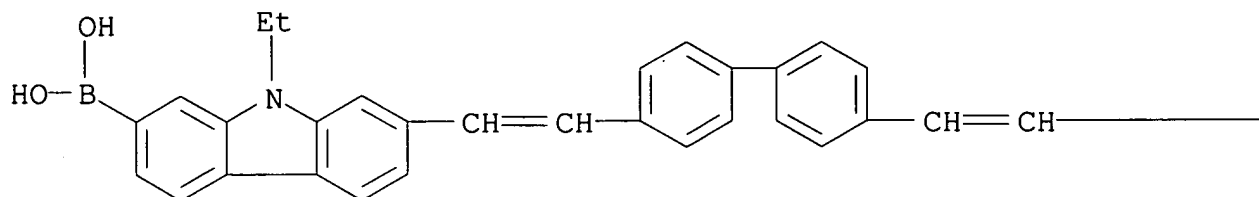


PAGE 2-A

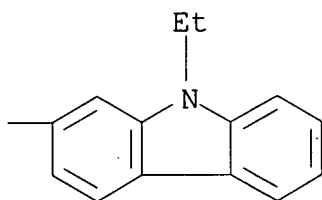


RN 546631-79-2 HCA  
CN Boronic acid, [9-ethyl-7-[2-[4'-[2-(9-ethyl-9H-carbazol-2-yl)ethenyl][1,1'-biphenyl]-4-yl]ethenyl]-9H-carbazol-2-yl]- (9CI) (CA INDEX NAME)

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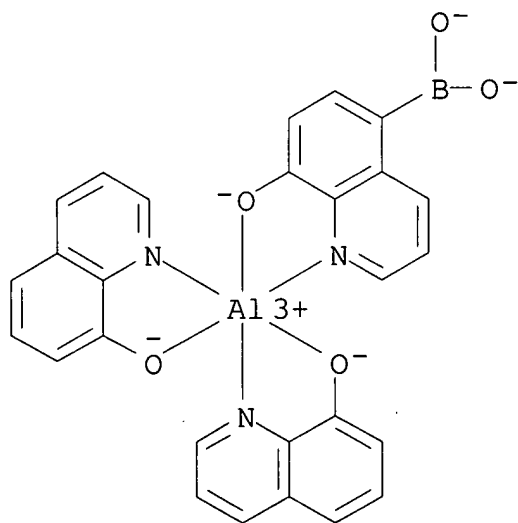


PAGE 1-B

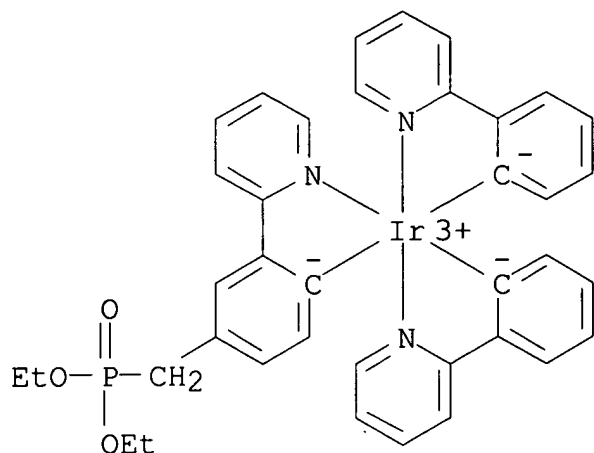


RN 547735-92-2 HCA

CN Aluminate(2-), [[8-(hydroxy-.kappa.O)-5-quinolinyl-.kappa.N]boronato(3-)]bis(8-quinolinolato-.kappa.N1,.kappa.O8)-, dihydrogen (9CI) (CA INDEX NAME)

● 2 H<sup>+</sup>

RN 547735-94-4 HCA  
 CN Iridium, [4-[(diethoxyphosphinyl)methyl]-2-(2-pyridinyl-  
 .kappa.N)phenyl-.kappa.C]bis[2-(2-pyridinyl-.kappa.N)phenyl-  
 .kappa.C]- (9CI) (CA INDEX NAME)



IC ICM C09K011-06  
 ICS H05B033-14  
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
 ST calixarene **light emitting** compn  
**electroluminescent** device; calixresorcinarene **light emitting** compn **electroluminescent** device  
 IT Luminescent substances  
 (electroluminescent; light-emitting calixarene or calixresorcinarene compns. for **electroluminescent** devices)  
 IT **Electroluminescent** devices  
 (light-emitting calixarene or calixresorcinarene compns. for **electroluminescent** devices)  
 IT 546630-96-0P 546631-02-1P 546631-10-1P 546631-20-3P  
 546631-28-1P 546631-34-9P 546631-43-0P 546631-51-0P  
 546631-61-2P 546631-67-8P 546631-76-9P 546631-81-6P  
 546632-16-0P 546632-26-2P 546632-35-3P 546632-42-2P  
 546632-48-8P 546632-62-6P 546632-74-0P 546632-79-5P  
**546633-06-1P** 546633-19-6P 546633-27-6P 546633-43-6P  
 546633-48-1P 546633-59-4P 547735-93-3P **547735-95-5P**  
 547756-86-5P 547756-88-7P 547756-90-1P 547757-01-7P  
 547757-04-0P 547757-07-3P 620973-57-1P 620973-60-6P  
 622356-09-6P 622357-28-2P  
 (light-emitting calixarene or calixresorcinarene compns. for **electroluminescent** devices)

IT 86-74-8, 9H-Carbazole 33895-36-2 99033-36-0 125065-71-6  
125748-07-4 144236-45-3 154497-06-0 162301-48-6 172472-58-1  
195323-70-7 301687-16-1 **546630-93-7 546630-99-3**  
**546631-07-6** 546631-13-4 **546631-16-7**  
**546631-23-6** 546631-25-8 546631-31-6 **546631-37-2**  
546631-40-7 **546631-48-5 546631-54-3**  
**546631-64-5** 546631-70-3 **546631-73-6**  
**546631-79-2** 546632-13-7 546632-19-3 546632-24-0  
546632-29-5 546632-32-0 546632-40-0 546632-45-5 546632-59-1  
546632-65-9 546632-68-2 546632-71-7 546632-77-3 546633-02-7  
546633-09-4 546633-12-9 546633-17-4 546633-22-1 546633-31-2  
546633-37-8 546633-40-3 546633-45-8 546633-51-6 546633-54-9  
546633-57-2 **547735-92-2 547735-94-4**  
620973-78-6

(**light-emitting** calixarene or  
calixresorcinarene compns. for **electroluminescent**  
devices)

IT 25067-59-8, Polyvinylcarbazole  
(**light-emitting** calixarene or  
calixresorcinarene compns. for **electroluminescent**  
devices)

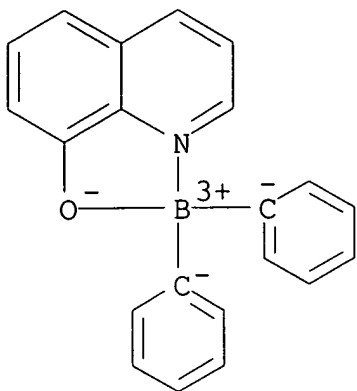
L98 ANSWER 8 OF 15 HCA COPYRIGHT 2005 ACS on STN  
139:171099 Organic **light-emitting** devices employing  
phosphorescent material doped into the electron-transporting layer.  
Yamazaki, Hiroko; Tokuda, Atsushi; Tsutsui, Tetsuo (Semiconductor  
Energy Laboratory Co., Ltd., USA). U.S. Pat. Appl. Publ. US  
2003146443 A1 20030807, 27 pp. (English). CODEN: USXXCO.  
APPLICATION: US 2002-304410 20021126. PRIORITY: JP 2001-360500  
20011127.

AB **Light-emitting** devices are described which  
comprise an **anode**, an optional hole-injection layer in  
contact with the **anode**, an org. compd. film, an optional  
electron-injection layer in contact with a **cathode**, and a  
**cathode**, where the org. compd. film comprises a  
hole-transporting layer contg. a hole-transporting material; and an  
electron-transporting layer in contact with the hole-transporting  
layer and contg. an electron-transporting material, where a  
**light-emitting** material capable of  
**emitting light** from a triplet excited state is  
added in the electron transporting layer.

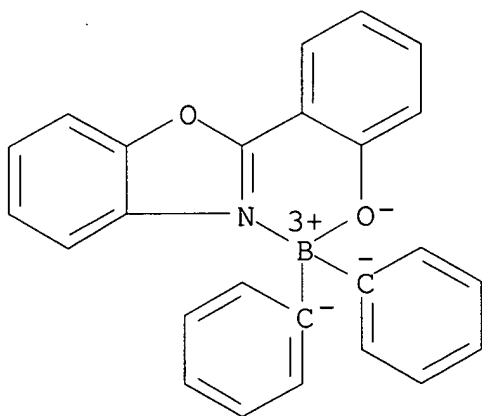
IT **29190-60-1 573968-23-7**  
(electron-transporting layer; org. **light-**  
**emitting** devices employing phosphorescent material doped  
in electron-transporting layer)

RN 29190-60-1 HCA

CN Boron, diphenyl(8-quinolinolato-.kappa.N1,.kappa.O8)-, (T-4)- (9CI)  
(CA INDEX NAME)

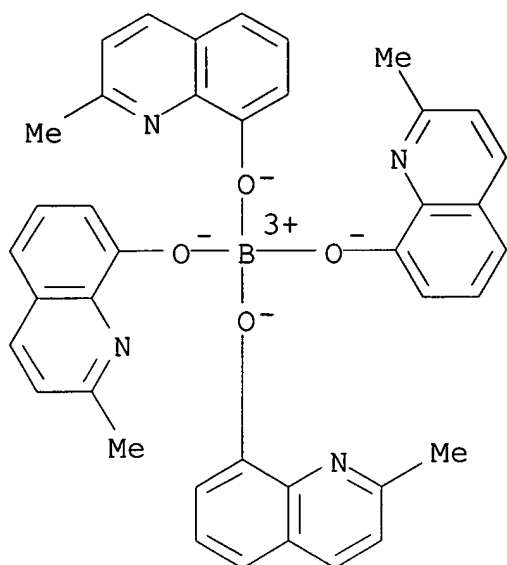


RN 573968-23-7 HCA  
 CN Boron, [2-(2-benzoxazolyl-.kappa.N3)phenolato-.kappa.O]diphenyl-,  
 (T-4)- (9CI) (CA INDEX NAME)



IT **338949-42-1 500899-10-5**  
 (electron-transporting layer; org. **light-**  
**emitting** devices employing phosphorescent material doped  
 in electron-transporting layer)  
 RN 338949-42-1 HCA  
 CN Borate(1-), tetrakis(2-methyl-8-quinolinolato-.kappa.O8)-, lithium  
 (9CI) (CA INDEX NAME)



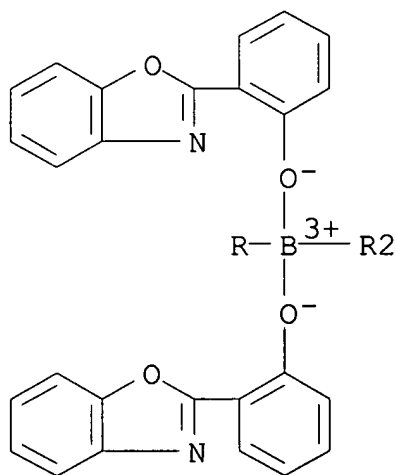


● Li<sup>+</sup>

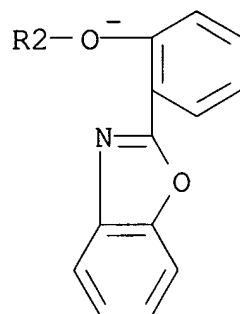
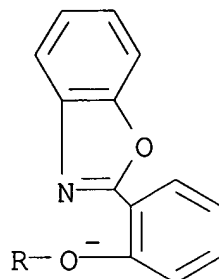
RN 500899-10-5 HCA

CN Borate(1-), tetrakis[2-(2-benzoxazolyl)phenolato-.kappa.O]-, lithium  
(9CI) (CA INDEX NAME)

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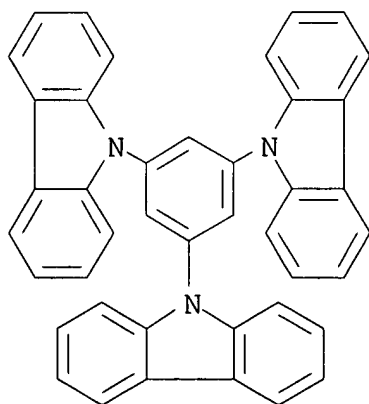
● Li<sup>+</sup>

IT 148044-07-9

(hole-transporting layer; org. **light-emitting**  
 devices employing phosphorescent material doped in  
 electron-transporting layer)

RN 148044-07-9 HCA

CN 9H-Carbazole, 9,9',9''-(1,3,5-benzenetriyl)tris- (9CI) (CA INDEX  
 NAME)

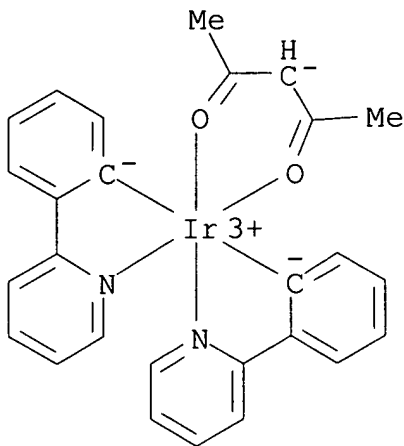


IT 337526-85-9 376367-93-0

(phosphorescent dopant; org. **light-emitting**  
devices employing phosphorescent material doped in  
electron-transporting layer)

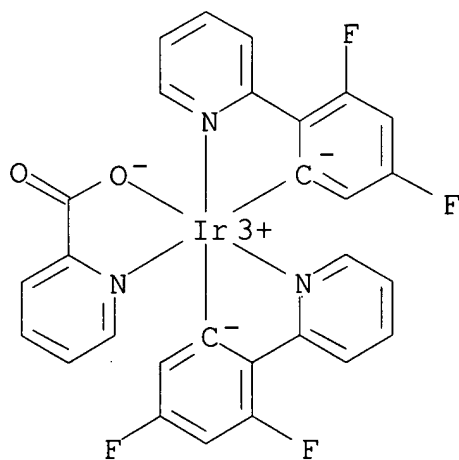
RN 337526-85-9 HCA

CN Iridium, (2,4-pentanedionato-.kappa.O,.kappa.O')bis[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]-, (OC-6-33)- (9CI) (CA INDEX NAME)



RN 376367-93-0 HCA

CN Iridium, bis[3,5-difluoro-2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C] (2-pyridinecarboxylato-.kappa.N1,.kappa.O2)- (9CI) (CA INDEX NAME)



IC ICM H01L027-15

INCL 257080000

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related  
Properties)

Section cross-reference(s): 22, 76, 78

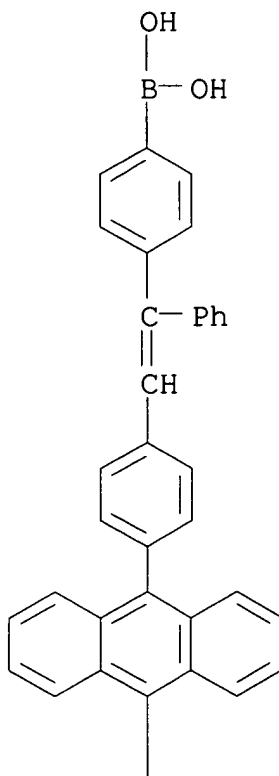
ST org **electroluminescent** device phosphorescent dopant  
IT Phosphorescent substances  
(org. **light-emitting** devices employing  
phosphorescent material doped in electron-transporting layer)  
IT **Electroluminescent** devices  
(org., phosphorescent; org. **light-emitting**  
devices employing phosphorescent material doped in  
electron-transporting layer)  
IT 192198-85-9 573968-21-5  
(doped electron-transporting and phosphorescent layer; org.  
**light-emitting** devices employing phosphorescent  
material doped in electron-transporting layer)  
IT 2085-33-8, Tris(8-quinolinolato)aluminum **29190-60-1**  
47464-14-2 146162-54-1, Bis(2-methyl-8-quinolinolato)(4-  
phenylphenolato)aluminum 259228-55-2 573968-22-6  
**573968-23-7**  
(electron-transporting layer; org. **light-**  
**emitting** devices employing phosphorescent material doped  
in electron-transporting layer)  
IT 157077-25-3 **338949-42-1 500899-10-5**  
(electron-transporting layer; org. **light-**  
**emitting** devices employing phosphorescent material doped  
in electron-transporting layer)  
IT 134257-64-0 **148044-07-9** 163815-23-4 168091-66-5  
573968-20-4  
(hole-transporting layer; org. **light-emitting**  
devices employing phosphorescent material doped in  
electron-transporting layer)  
IT **337526-85-9 376367-93-0**  
(phosphorescent dopant; org. **light-emitting**  
devices employing phosphorescent material doped in  
electron-transporting layer)

L98 ANSWER 9 OF 15 HCA COPYRIGHT 2005 ACS on STN

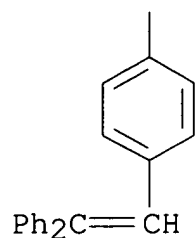
139:60162 Organic **electroluminescent** material using calixarene  
or calixresorciarene derivative. Momoda, Junji; Kawabata, Yuichiro;  
Otani, Toshiaki (Tokuyama Corporation, Japan). PCT Int. Appl. WO  
2003050201 A1 20030619, 140 pp. DESIGNATED STATES: W: AE, AG, AL,  
AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ,  
DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL,  
IN, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG,  
MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG,  
SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,  
ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR,  
GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR.  
(Japanese). CODEN: PIXXD2. APPLICATION: WO 2002-JP12821 20021206.  
PRIORITY: JP 2001-378448 20011212; JP 2002-120827 20020423; JP  
2002-208112 20020717.

- AB The invention refers to an org. **electroluminescent** materials suitable for spin coating, comprising. a calixarene or calixresorciarene deriv. with an **org. luminescent** group and/or an org. charge transport group, such as 4-[1-(2,2-diphenylvinyl)-biphenyl-2-phenylvinyl]phenyl.
- IT **546631-73-6P 546633-06-1P 547735-95-5P**  
(org. **electroluminescent** material using calixarene or calixresorciarene deriv.)
- RN 546631-73-6 HCA
- CN Boronic acid, [4-[2-[4-[10-[4-(2,2-diphenylethenyl)phenyl]-9-anthracenyl]phenyl]-1-phenylethenyl]phenyl]- (9CI) (CA INDEX NAME)

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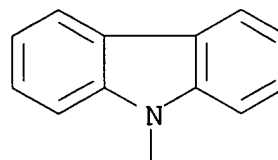
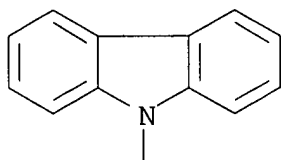


PAGE 2-A

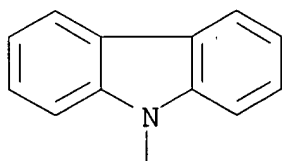


RN 546633-06-1 HCA  
 CN 9H-Carbazole, 9,9',9'',9''',9'''',9'''''-  
 (73,74,75,76,77,78,79,80,81,82,83,84-dodecapropoxytridecacyclo[67.3.  
 1.13,7.19,13.115,19.121,25.127,31.133,37.139,43.145,49.151,55.157,61  
 .163,67]tetraoctaconta-1(73),3,5,7(84),9,11,13(83),15,17,19(82),21,2  
 3,25(81),27,29,31(80),33,35,37(79),39,41,43(78),45,47,49(77),51,53,5  
 5(76),57,59,61(75),63,65,67(74),69,71-hexatriacontaene-  
 5,17,29,41,53,65-hexayl)hexakis- (9CI) (CA INDEX NAME)

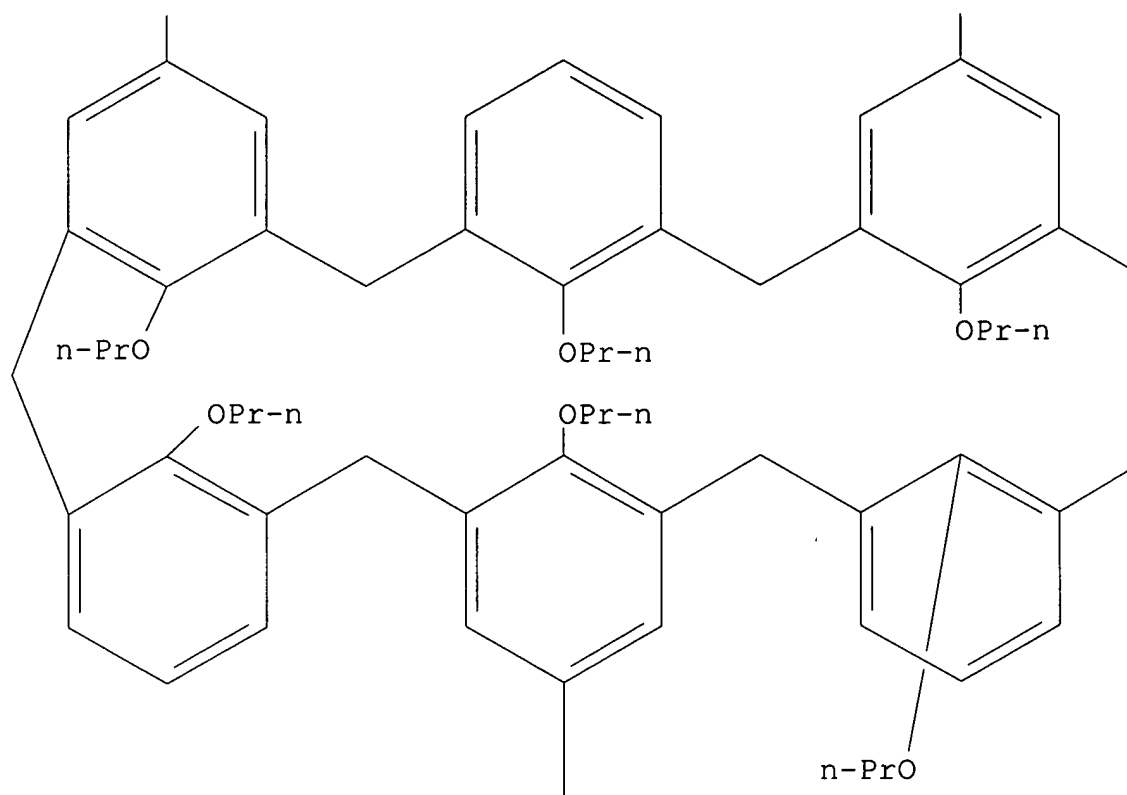
PAGE 1-A



PAGE 1-B

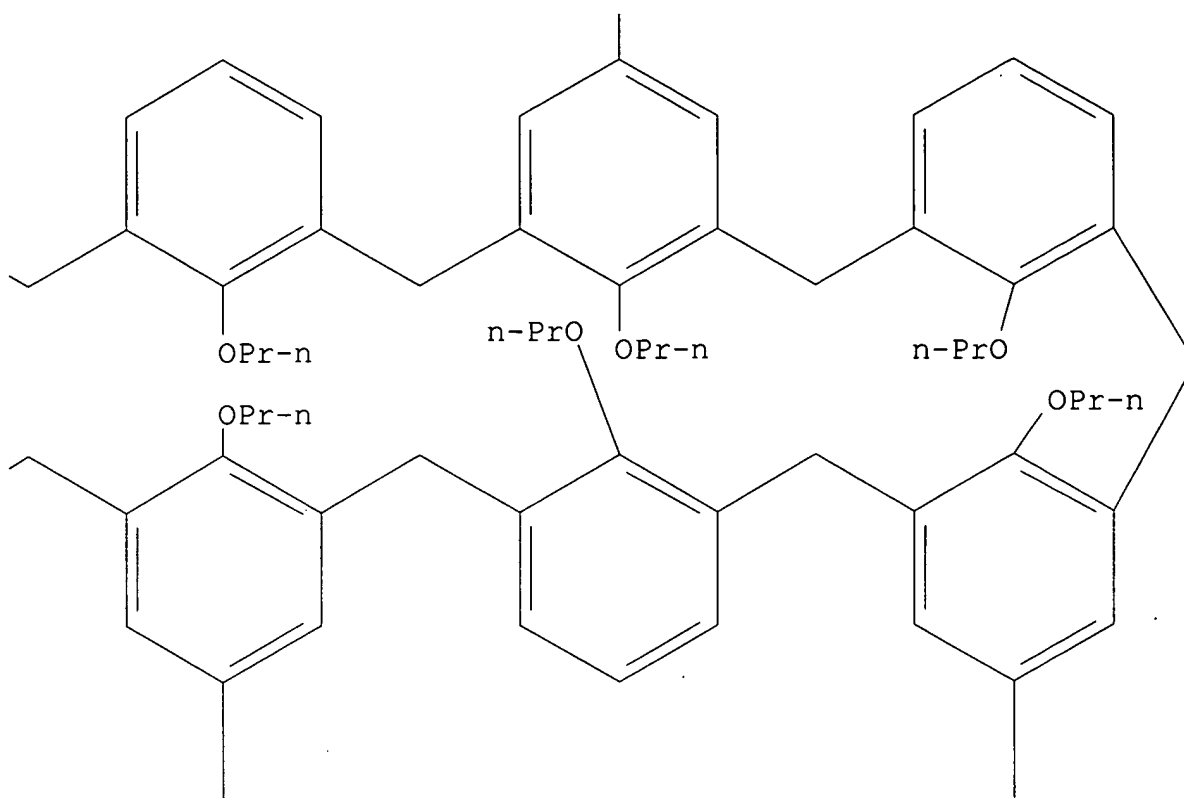


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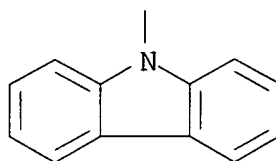




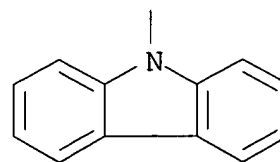
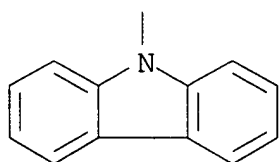
PAGE 2-B



PAGE 3-A



PAGE 3-B



CN Iridium, [4-[2-(37,38,39,40,41,42-hexamethoxyheptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),3,35-octadecaen-5-yl)ethenyl]-2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]bis[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]- (9CI) (CA INDEX NAME)

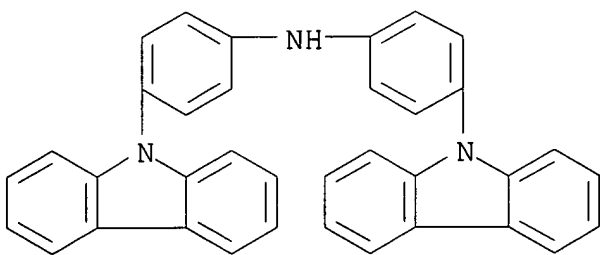
\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IT **325492-24-8 546630-93-7 546630-99-3**  
**546631-07-6 546631-16-7 546631-23-6**  
**546631-37-2 546631-48-5 546631-54-3**  
**546631-64-5 546631-79-2 546631-87-2**  
**546631-93-0 546631-99-6 546632-05-7**  
**546634-61-1 546634-64-4 546634-67-7**  
**546634-69-9 546634-74-6 547735-92-2**  
**547735-94-4**

(org. **electroluminescent** material using calixarene or calixresorciarene deriv.)

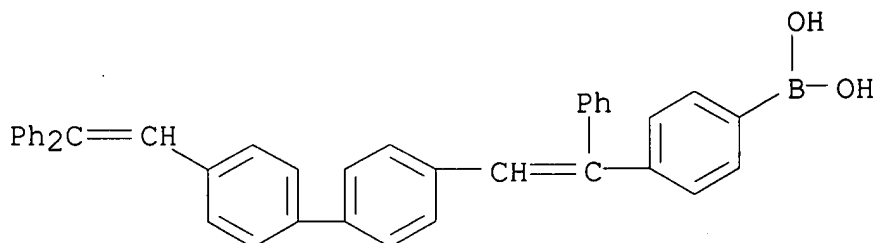
RN 325492-24-8 HCA

CN Benzenamine, 4-(9H-carbazol-9-yl)-N-[4-(9H-carbazol-9-yl)phenyl]- (9CI) (CA INDEX NAME)



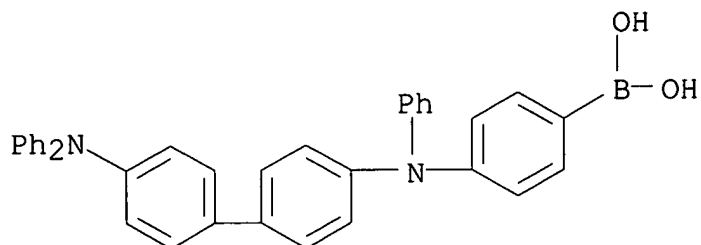
RN 546630-93-7 HCA

CN Boronic acid, [4-[2-[4'-(2,2-diphenylethenyl)[1,1'-biphenyl]-4-yl]-1-phenylethenyl]phenyl]- (9CI) (CA INDEX NAME)



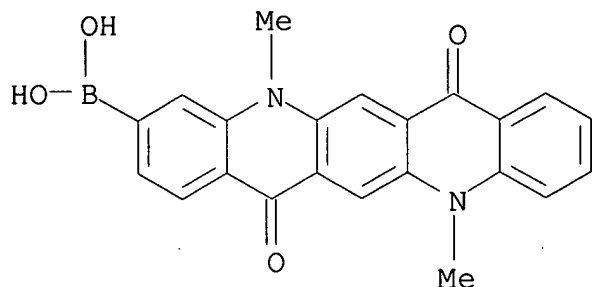
RN 546630-99-3 HCA

CN Boronic acid, [4-[[4'-(diphenylamino)[1,1'-biphenyl]-4-yl]phenylamino]phenyl]- (9CI) (CA INDEX NAME)



RN 546631-07-6 HCA

CN Boronic acid, (5,7,12,14-tetrahydro-5,12-dimethyl-7,14-dioxoquino[2,3-b]acridin-3-yl)- (9CI) (CA INDEX NAME)



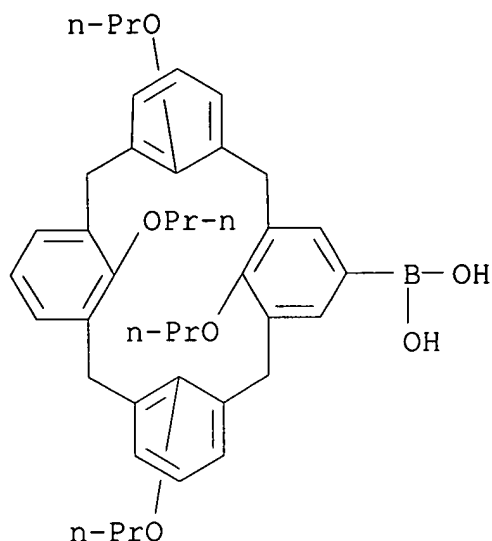
RN 546631-16-7 HCA

CN Boronic acid, (37,38,39,40,41,42-hexamethoxyheptacyclo[31.3.1.13,7.19,13.115,19.121,15.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene-5,17,29-triyl)tris- (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 546631-23-6 HCA

CN Boronic acid, (25,26,27,28-tetrapropoxypentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaen-5-yl)- (9CI) (CA INDEX NAME)



RN 546631-37-2 HCA

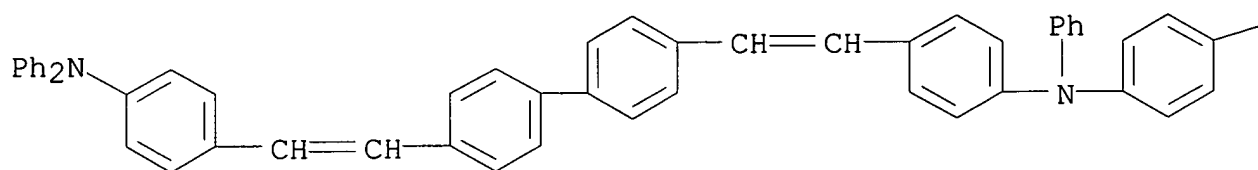
CN Boronic acid, (37,38,39,40,41,42-hexamethoxyheptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaen-5-yl)- (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

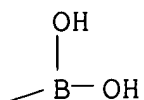
RN 546631-48-5 HCA

CN Boronic acid, [4-[[4-[2-[4'-[2-[4-(diphenylamino)phenyl]ethenyl]][1,1'-biphenyl]-4-yl]ethenyl]phenyl]phenylamino]phenyl]- (9CI) (CA INDEX NAME)

PAGE 1-A

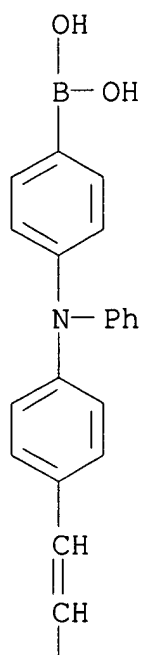


PAGE 1-B

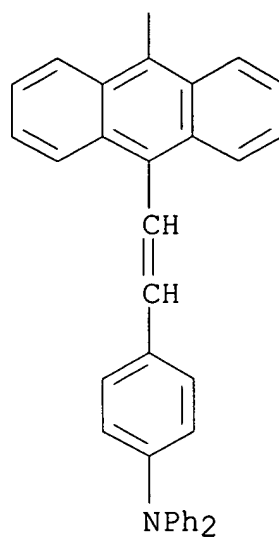


RN 546631-54-3 HCA  
 CN Boronic acid, [4-[[4-[2-[10-[2-[4-(diphenylamino)phenyl]ethenyl]-9-anthracenyl]ethenyl]phenyl]phenylamino]phenyl]- (9CI) (CA INDEX NAME)

PAGE 1-A



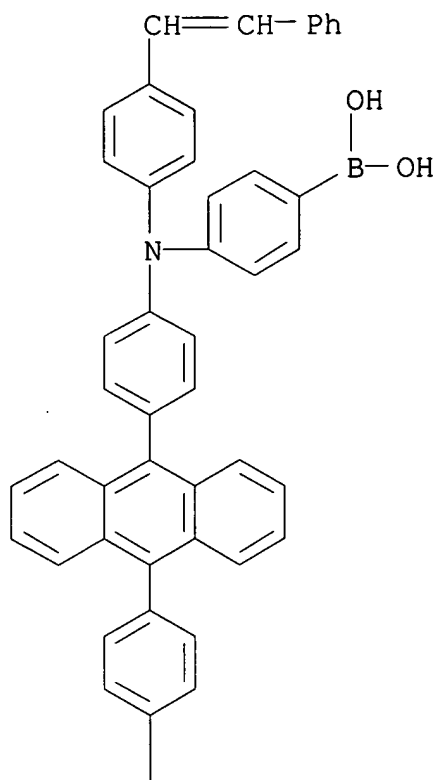
PAGE 2-A



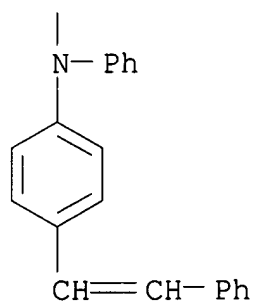
RN 546631-64-5 HCA

CN Boronic acid, [4-[[4-(2-phenylethenyl)phenyl][4-[10-[4-[phenyl[4-(2-phenylethenyl)phenyl]amino]phenyl]-9-anthracenyl]phenyl]amino]phenyl]- (9CI) (CA INDEX NAME)

PAGE 1-A

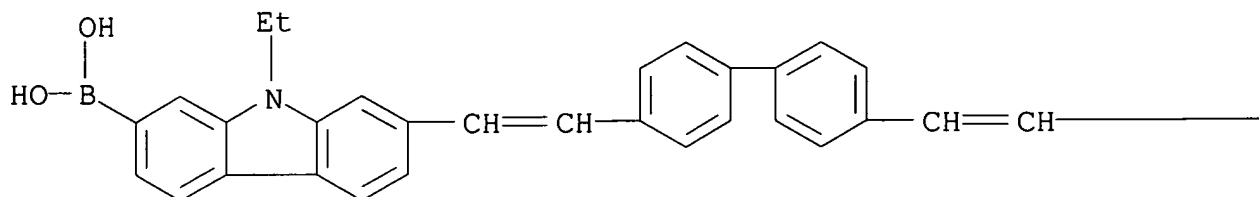


PAGE 2-A

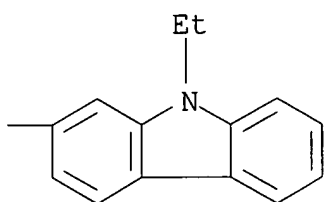


RN	546631-79-2	HCA
CN	Boronic acid, [9-ethyl-7-[2-[4'-[2-(9-ethyl-9H-carbazol-2-yl)ethenyl][1,1'-biphenyl]-4-yl]ethenyl]-9H-carbazol-2-yl]- (9CI) (CA INDEX NAME)	

PAGE 1-A

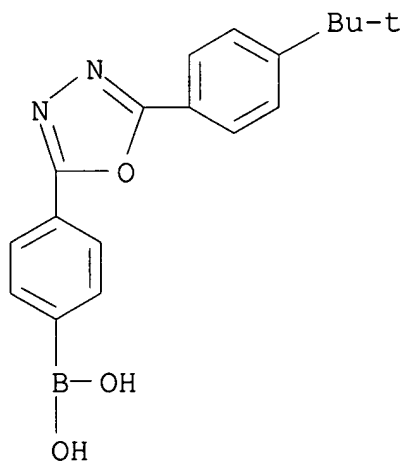


PAGE 1-B



RN 546631-87-2 HCA

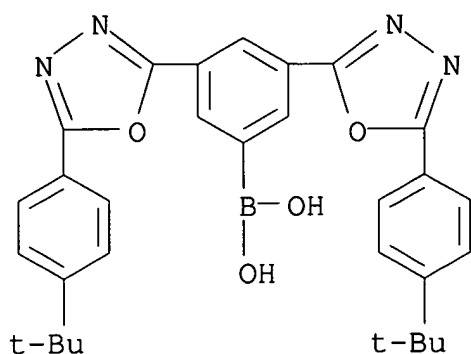
CN Boronic acid, [4-[5-[4-(1,1-dimethylethyl)phenyl]-1,3,4-oxadiazol-2-yl]phenyl]- (9CI) (CA INDEX NAME)



RN 546631-93-0 HCA

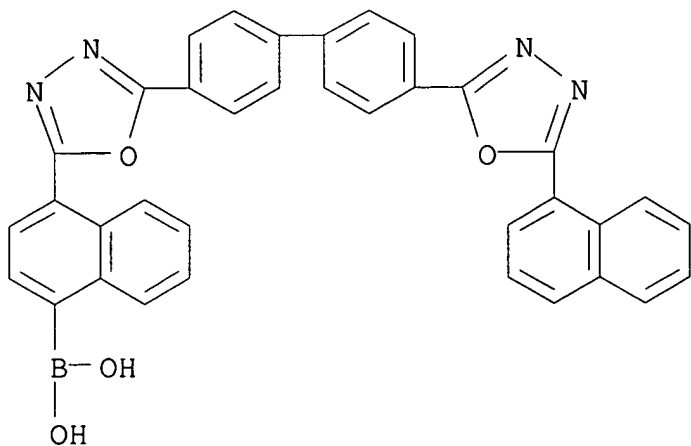
CN Boronic acid, [3,5-bis[5-[4-(1,1-dimethylethyl)phenyl]-1,3,4-oxadiazol-2-yl]phenyl]- (9CI) (CA INDEX NAME)





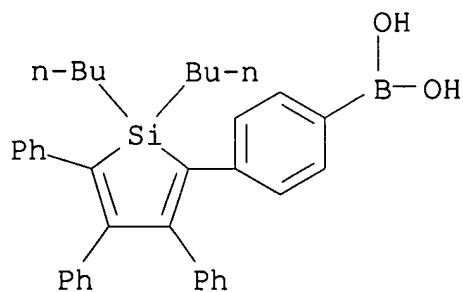
RN 546631-99-6 HCA

CN Boronic acid, [4-[5-[4'-[5-(1-naphthalenyl)-1,3,4-oxadiazol-2-yl][1,1'-biphenyl]-4-yl]-1,3,4-oxadiazol-2-yl]-1-naphthalenyl]-  
(9CI) (CA INDEX NAME)



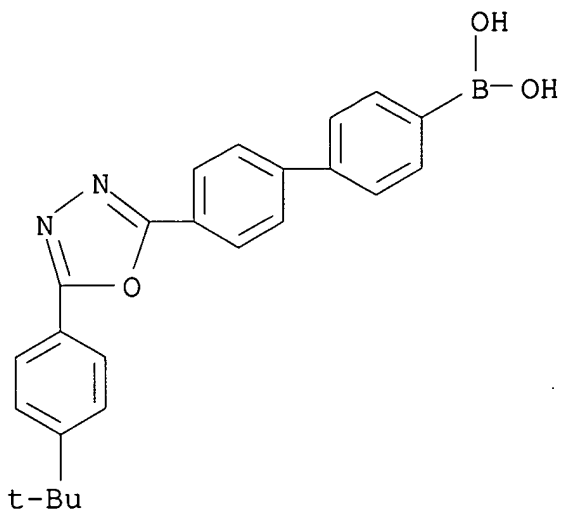
RN 546632-05-7 HCA

CN Boronic acid, [4-(1,1-dibutyl-3,4,5-triphenylsilacyclopenta-2,4-dien-2-yl)phenyl]- (9CI) (CA INDEX NAME)



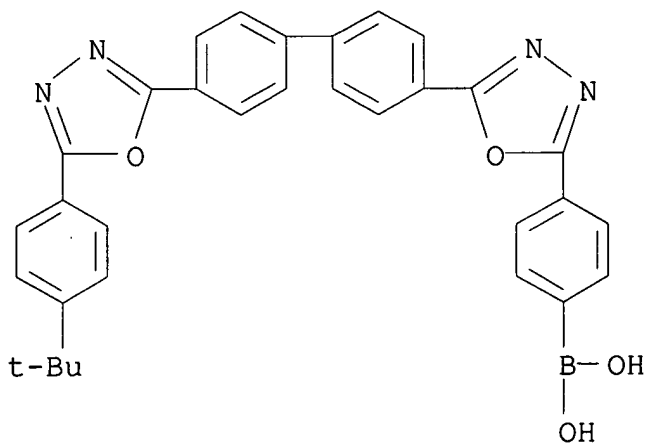
RN 546634-61-1 HCA

CN Boronic acid, [4'-[5-[4-(1,1-dimethylethyl)phenyl]-1,3,4-oxadiazol-2-yl][1,1'-biphenyl]-4-yl]- (9CI) (CA INDEX NAME)



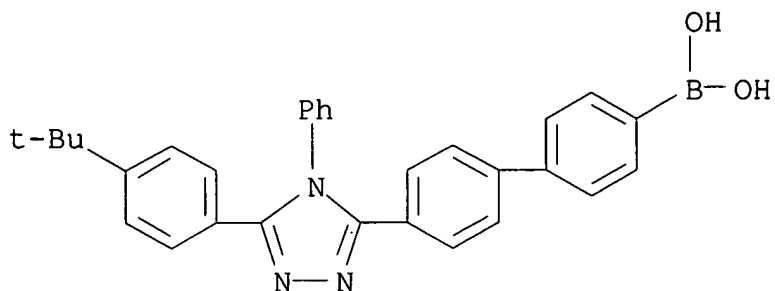
RN 546634-64-4 HCA

CN Boronic acid, [4-[5-[4'-[5-[4-(1,1-dimethylethyl)phenyl]-1,3,4-oxadiazol-2-yl][1,1'-biphenyl]-4-yl]-1,3,4-oxadiazol-2-yl]phenyl]- (9CI) (CA INDEX NAME)



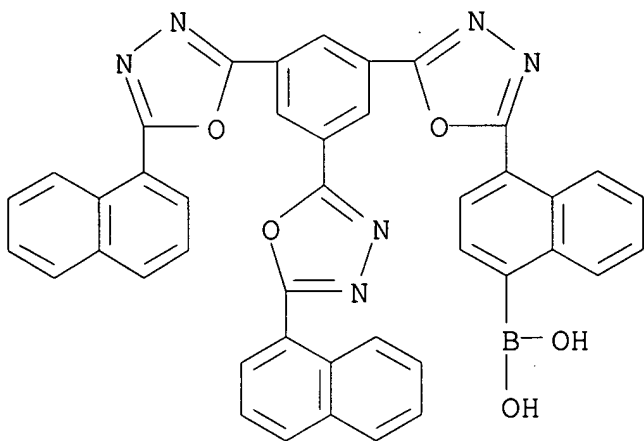
RN 546634-67-7 HCA

CN Boronic acid, [4'-[5-[4-(1,1-dimethylethyl)phenyl]-4-phenyl-4H-1,2,4-triazol-3-yl][1,1'-biphenyl]-4-yl]- (9CI) (CA INDEX NAME)



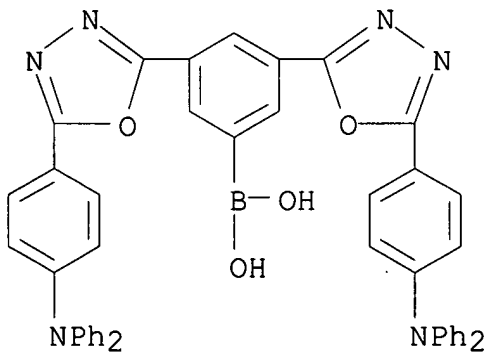
RN 546634-69-9 HCA

CN Boronic acid, [4-[5-[3,5-bis[5-(1-naphthalenyl)-1,3,4-oxadiazol-2-yl]phenyl]-1,3,4-oxadiazol-2-yl]-1-naphthalenyl]- (9CI) (CA INDEX NAME)



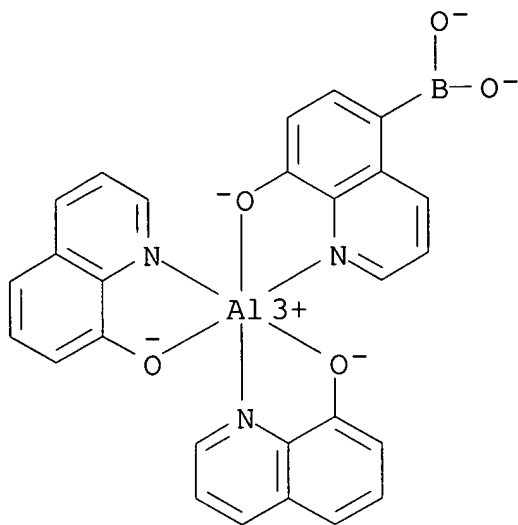
RN 546634-74-6 HCA

CN Boronic acid, [3,5-bis[5-[4-(diphenylamino)phenyl]-1,3,4-oxadiazol-2-yl]phenyl]- (9CI) (CA INDEX NAME)



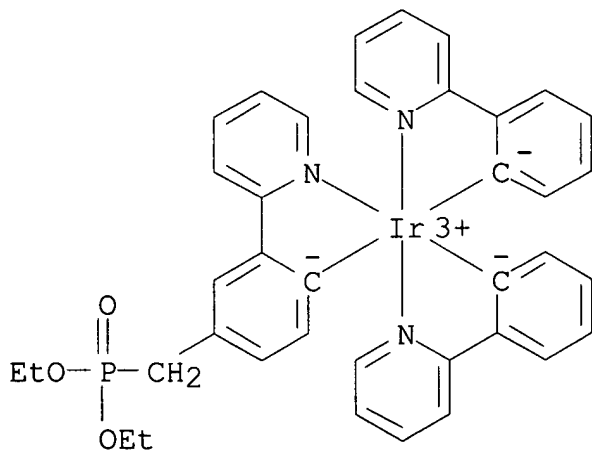
RN 547735-92-2 HCA

CN Aluminate(2-), [[8-(hydroxy-.kappa.O)-5-quinolinyl-.kappa.N]boronato(3-)]bis(8-quinolinolato-.kappa.N1,.kappa.O8)-, dihydrogen (9CI) (CA INDEX NAME)

● 2 H<sup>+</sup>

RN 547735-94-4 HCA

CN Iridium, [4-[(diethoxyphosphinyl)methyl]-2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]bis[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]- (9CI) (CA INDEX NAME)



IC ICM C09K011-06

ICS H05B033-14; H05B033-22; C07C043-215; C07C043-21; C07C043-285;  
 C07C211-54; C07C211-61; C07C217-80; C07F007-08; C07F007-10;  
 C07D209-86; C07D471-04; C07D471-06; C07D271-10; C07D251-24;  
 C07D413-14; C07D235-18; C07D213-16; C07D215-30

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

ST **electroluminescent** material device calixarene calixresorciarene

IT **Luminescent** substances  
 (electroluminescent; org. electroluminescent material using calixarene or calixresorciarene deriv.)

IT **Electroluminescent** devices  
 (org. electroluminescent material using calixarene or calixresorciarene deriv.)

IT Metacyclophanes  
 (org. electroluminescent material using calixarene or calixresorciarene deriv.)

IT 546630-96-0P 546631-02-1P 546631-10-1P 546631-20-3P  
 546631-28-1P 546631-34-9P 546631-43-0P 546631-51-0P  
 546631-61-2P 546631-67-8P **546631-73-6P** 546631-76-9P  
 546631-81-6P 546631-90-7P 546631-96-3P 546632-02-4P  
 546632-08-0P 546632-16-0P 546632-26-2P 546632-35-3P  
 546632-42-2P 546632-48-8P 546632-54-6P 546632-56-8P  
 546632-62-6P 546632-74-0P 546632-79-5P 546632-87-5P  
 546632-93-3P **546633-06-1P** 546633-19-6P 546633-27-6P  
 546633-43-6P 546633-48-1P 546633-59-4P 546633-66-3P  
 546633-70-9P 546633-78-7P 547735-93-3P **547735-95-5P**  
 547756-86-5P 547756-88-7P 547756-90-1P 547756-92-3P  
 547756-97-8P 547756-99-0P 547757-01-7P 547757-04-0P  
 547757-05-1P 547757-07-3P 547757-08-4P 547757-21-1P  
 547757-32-4P 547757-36-8P 547757-37-9P 547757-39-1P  
 547757-42-6P 547757-43-7P 547757-44-8P 547757-46-0P  
 547757-47-1P 547757-48-2P 547757-49-3P 547757-50-6P  
 547757-51-7P 547757-52-8P 547757-53-9P 547757-54-0P  
 547757-55-1P 547757-59-5P 547757-63-1P 547757-64-2P  
 547757-65-3P 547757-66-4P 547757-98-2P 547758-22-5P  
 547758-61-2P 547759-00-2P 547759-52-4P 547759-75-1P  
 547760-07-6P 547760-38-3P 547761-00-2P 547761-27-3P  
 547761-55-7P 547761-91-1P 547762-32-3P 547762-84-5P  
 547763-30-4P 547763-53-1P 547763-57-5P 547763-69-9P  
 547763-70-2P 547763-71-3P  
 (org. electroluminescent material using calixarene or calixresorciarene deriv.)

IT 86-74-8, 9H-Carbazole 101-23-5 328-20-1 500-41-4 1205-64-7  
 33895-36-2 99033-36-0 125065-71-6 125748-07-4 144236-45-3  
 146823-42-9 154497-06-0 162301-48-6 167218-30-6 172472-58-1  
 204327-06-0 207447-39-0 301687-16-1 309715-34-2

325492-24-8 352359-43-4 546630-93-7  
 546630-99-3 546631-07-6 546631-13-4  
 546631-16-7 546631-23-6 546631-25-8  
 546631-31-6 546631-37-2 546631-40-7 546631-48-5  
 546631-54-3 546631-64-5 546631-70-3  
 546631-79-2 546631-84-9 546631-87-2  
 546631-93-0 546631-99-6 546632-05-7  
 546632-13-7 546632-19-3 546632-24-0 546632-29-5 546632-32-0  
 546632-40-0 546632-45-5 546632-51-3 546632-59-1 546632-65-9  
 546632-68-2 546632-71-7 546632-77-3 546632-82-0 546632-90-0  
 546632-96-6 546632-99-9 546633-02-7 546633-09-4 546633-12-9  
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 546634-39-3 546634-44-0 546634-47-3 546634-56-4  
 546634-61-1 546634-64-4 546634-67-7  
 546634-69-9 546634-74-6 546634-79-1  
 547735-92-2 547735-94-4

(org. **electroluminescent** material using calixarene or calixresorciarene deriv.)

IT 546633-87-8P 546634-14-4P 547757-24-4P 547757-25-5P  
 547757-26-6P 547757-27-7P 547757-31-3P 548458-40-8P  
 (org. **electroluminescent** material using calixarene or calixresorciarene deriv.)

L98 ANSWER 10 OF 15 HCA COPYRIGHT 2005 ACS on STN

138:177888 High-efficiency electrophosphorescent organic **light-emitting** diodes with double **light-**

**emitting** layers. Zhou, X.; Qin, D. S.; Pfeiffer, M.; Blochwitz-Nimoth, J.; Werner, A.; Drechsel, J.; Maennig, B.; Leo, K.; Bold, M.; Erk, P.; Hartmann, H. (Institut fur Angewandte Photophysik, Technische Universitat Dresden, Dresden, D-01062, Germany). Applied Physics Letters, 81(21), 4070-4072 (English) 2002. CODEN: APPLAB. ISSN: 0003-6951. Publisher: American Institute of Physics.

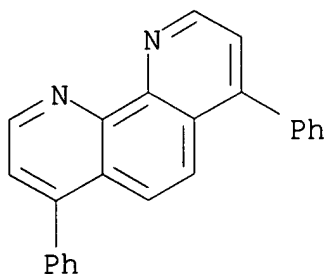
AB The authors demonstrate high-efficiency electrophosphorescent org. **light-emitting** diodes (PHOLEDs) with double **light-emitting** layers (D-EMLs) by doping both hole and electron transport hosts with fac tris(2-phenylpyridine)iridium [Ir(ppy)3] simultaneously. The D-EMLs PHOLEDs show significantly improved efficiency (peak external quantum efficiency of .apprx.12.6%, corresponding to a current efficiency of 44.3 cd/A) compared to the conventional PHOLEDs with a single EML and either hole or electron transport host doped with Ir(ppy)3. The authors attribute this improvement mainly to reduced losses of triplet excitons into regions that are not doped by phosphorescent emitter

mols.

IT **1662-01-7**, 4,7-Diphenyl-1,10-phenanthroline  
**139092-78-7**, 4,4',4''-Tris(N-carbazolyl)triphenylamine  
(high-efficiency electrophosphorescent org. **light-emitting** diodes with double **light-emitting** layers)

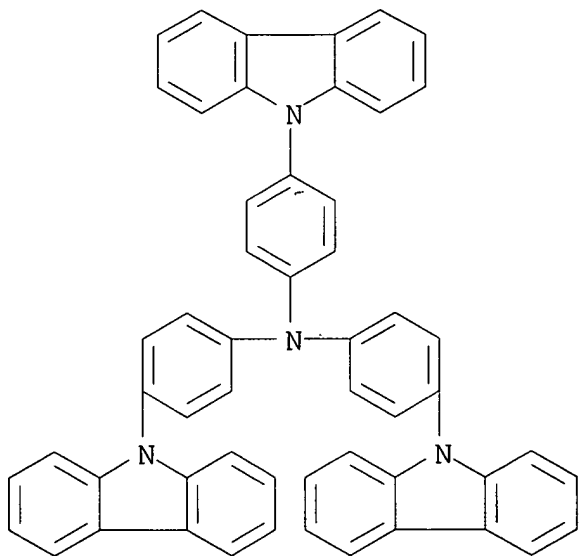
RN 1662-01-7 HCA

CN 1,10-Phenanthroline, 4,7-diphenyl- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 139092-78-7 HCA

CN Benzenamine, 4-(9H-carbazol-9-yl)-N,N-bis[4-(9H-carbazol-9-yl)phenyl]- (9CI) (CA INDEX NAME)

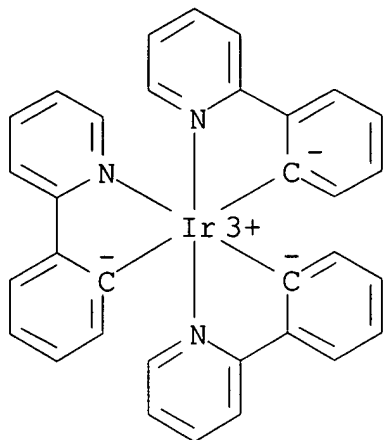
IT **94928-86-6**

(high-efficiency electrophosphorescent org. **light-emitting** diodes with double **light-emitting** layers)

RN 94928-86-6 HCA

CN Iridium, tris[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]-, (OC-6-22)-

(9CI) (CA INDEX NAME)



- CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
- ST electrophosphorescent **electroluminescent** device iridium phenylpyridine doping
- IT Phosphorescence  
(electro-; high-efficiency electrophosphorescent org. **light-emitting** diodes with double **light-emitting** layers)
- IT Doping  
**Electroluminescent** devices  
(high-efficiency electrophosphorescent org. **light-emitting** diodes with double **light-emitting** layers)
- IT **1662-01-7**, 4,7-Diphenyl-1,10-phenanthroline  
**139092-78-7**, 4,4',4''-Tris(N-carbazolyl)triphenylamine  
(high-efficiency electrophosphorescent org. **light-emitting** diodes with double **light-emitting** layers)
- IT **94928-86-6**  
(high-efficiency electrophosphorescent org. **light-emitting** diodes with double **light-emitting** layers)
- L98 ANSWER 11 OF 15 HCA COPYRIGHT 2005 ACS on STN  
137:301875 Novel polymer and its use in luminescent device. Taguchi, Toshiki (Fuji Photo Film Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2002302516 A2 **20021018**, 17 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-104580 20010403.
- AB The polymer is represented by (Am)p-(Bn)q (A = monomer unit having both hole-transporting structure and electron-transporting structure; B = monomer unit having structure other than A; m



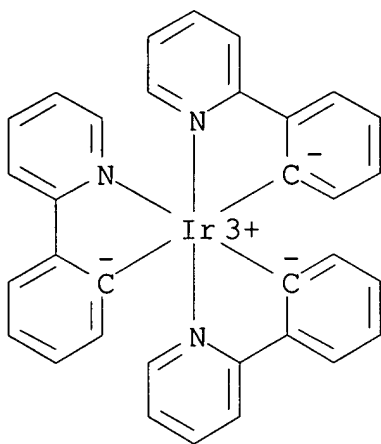
.gtoreq. 1; n .gtoreq. 0; p, q = molar fraction in %; p = 1-100; q = 0-99; p + q = 100). The device has the polymer between electrodes, and preferably uses phosphors **emitting light** from triplet excited state. The polymer gives the device with high luminance, **light-emitting** efficiency, and durability.

IT **94928-86-6**

(phosphor; polymer having hole-transporting and electron transporting structure for luminescent device)

RN 94928-86-6 HCA

CN Iridium, tris[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]-, (OC-6-22)-(9CI) (CA INDEX NAME)



IT **468065-96-5 468065-98-7**

(polymer having hole-transporting and electron transporting structure for luminescent device)

RN 468065-96-5 HCA

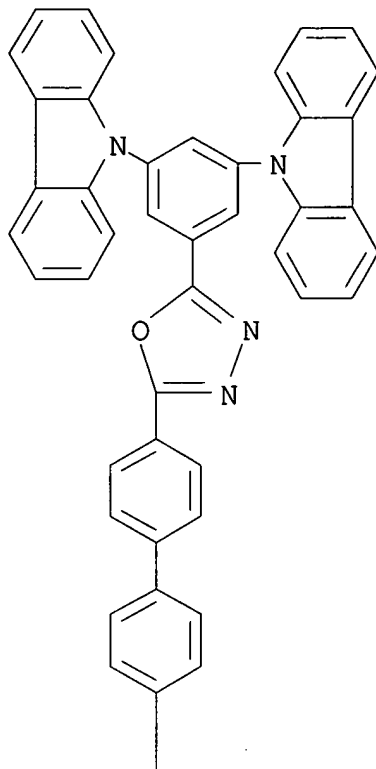
CN 9H-Carbazole, 9,9'-[5-[5-(4'-ethenyl[1,1'-biphenyl]-4-yl)-1,3,4-oxadiazol-2-yl]-1,3-phenylene]bis-, homopolymer (9CI) (CA INDEX NAME)

CM 1

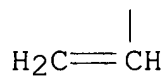
CRN 468065-95-4

CMF C46 H30 N4 O

PAGE 1-A



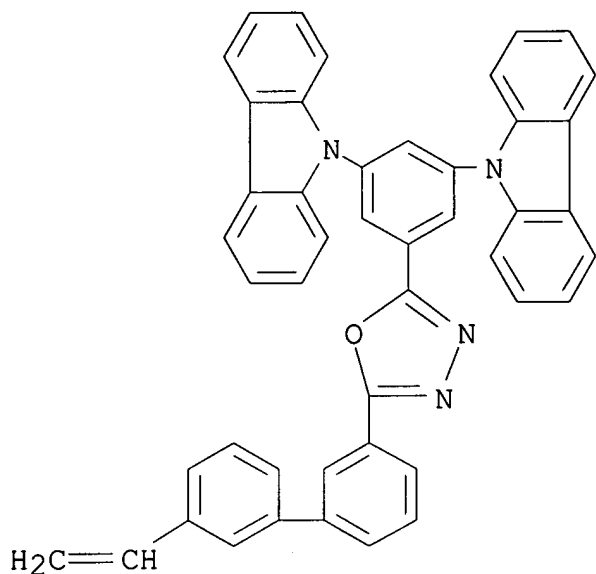
PAGE 2-A



RN	468065-98-7	HCA
CN	9H-Carbazole, 9,9'-[5-[5-(3'-ethenyl[1,1'-biphenyl]-3-yl)-1,3,4-oxadiazol-2-yl]-1,3-phenylene]bis-, homopolymer (9CI) (CA INDEX NAME)	

CM 1

CRN 468065-97-6  
CMF C46 H30 N4 O

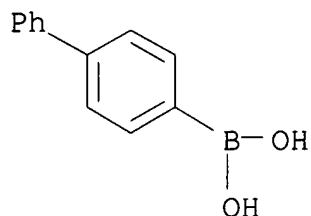


IT **5122-94-1**

(polymer having hole-transporting and electron transporting structure for luminescent device)

RN 5122-94-1 HCA

CN Boronic acid, [1,1'-biphenyl]-4-yl- (9CI) (CA INDEX NAME)



IC ICM C08F012-32

ICS C08F012-26; C08F026-12; C09K011-06; H05B033-14

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 37

IT **Electroluminescent** devices

Phosphors

(polymer having hole-transporting and electron transporting structure for luminescent device)

IT 38215-36-0, Coumarin-6 **94928-86-6**

(phosphor; polymer having hole-transporting and electron transporting structure for luminescent device)

IT **468065-96-5 468065-98-7** 468066-00-4

468066-02-6 468066-04-8 468066-06-0

(polymer having hole-transporting and electron transporting structure for luminescent device)

- IT 86-74-8, Carbazole 302-01-2, Hydrazine, reactions 497-19-8, Sodium carbonate, reactions 586-75-4, 4-Bromobenzoyl chloride 2417-72-3, 4-Bromomethylbenzoic acid methyl ester **5122-94-1**  
(polymer having hole-transporting and electron transporting structure for luminescent device)

L98 ANSWER 12 OF 15 HCA COPYRIGHT 2005 ACS on STN

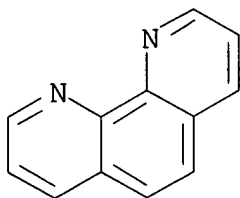
- 137:208156 Metal-containing dendrimers. Burn, Paul Leslie; Christou, Victor; Lo, Shi-Chun; Pillow, Jonathan Nigel Gerard; Lupton, John Mark; Samuel, Ifor David William (Isis Innovation Limited, UK). PCT Int. Appl. WO 2002066552 A1 **20020829**, 77 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR.  
(English). CODEN: PIXXD2. APPLICATION: WO 2002-GB750 20020220. PRIORITY: GB 2001-4175 20010220; GB 2001-6307 20010314.

- AB **Light-emitting** devices are described which comprise .gtoreq.1 layer that contains an organometallic dendrimer with a metal cation as part of its core, the core not comprising a magnesium-chelated porphyrin. Organometallic dendrimers which comprise a metal cation as part of its core and .gtoreq.2 dendrons are described in which .gtoreq.1 of the dendrons is conjugated, the dendrimer is luminescent in the solid state, and the core does not comprise a magnesium-chelated porphyrin. Blends of the organometallic dendrimers and a corresponding nonmetallic dendrimer having the same dendritic structure as that of the organometallic dendrimer are also described. Methods for producing dendrimers are described which entail providing a core by forming a complex between a metal cation and .gtoreq.2 coordinating groups, at least two of the the groups bearing a reactive functionality; and treating the core thus provided with .gtoreq.2 dendrons which were functionalized to render them reactive towards the reactive functionalities present in the core, .gtoreq.1 of the dendrons being conjugated. Methods for producing dendrimers are also described which entail attaching a coordinating group to each of .gtoreq.2 dendrons; forming a complex between the coordinating groups and a metal cation; and optionally further treating the complex with .gtoreq.1 addnl. coordinating ligands.
- IT **66-71-7D**, 1,10-Phenanthroline, reaction products with organometallic dendrimers **4733-39-5D**, Bathocuproin, reaction products with organometallic dendrimers

(metal-contg. dendrimers and their prodn. and blends contg. them  
and **light-emitting** devices using them)

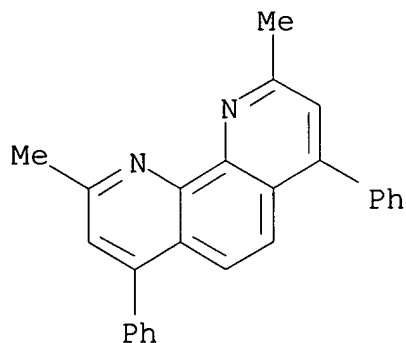
RN 66-71-7 HCA

CN 1,10-Phenanthroline (7CI, 8CI, 9CI) (CA INDEX NAME)



RN 4733-39-5 HCA

CN 1,10-Phenanthroline, 2,9-dimethyl-4,7-diphenyl- (6CI, 7CI, 8CI, 9CI)  
(CA INDEX NAME)



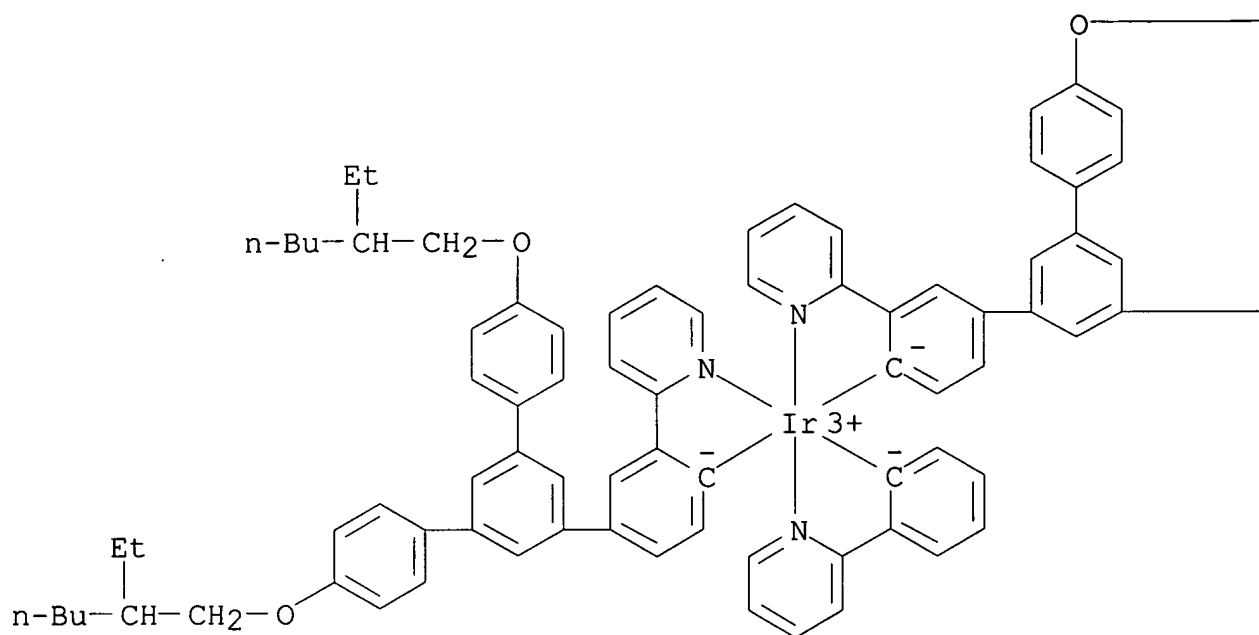
IT **453538-22-2P 453538-23-3P 453538-24-4P**  
**453538-25-5P**

(metal-contg. dendrimers and their prodn. and blends contg. them  
and **light-emitting** devices using them)

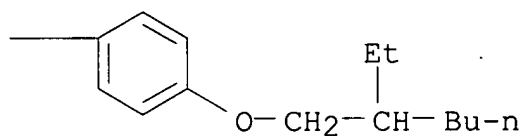
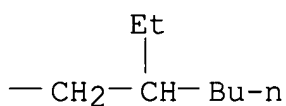
RN 453538-22-2 HCA

CN Iridium, bis[4''-[(2-ethylhexyl)oxy]-5'-[4-[(2-ethylhexyl)oxy]phenyl]-3-(2-pyridinyl-.kappa.N)[1,1':3',1''-terphenyl]-4-yl-.kappa.C][2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]-, (OC-6-43)- (9CI) (CA INDEX NAME)

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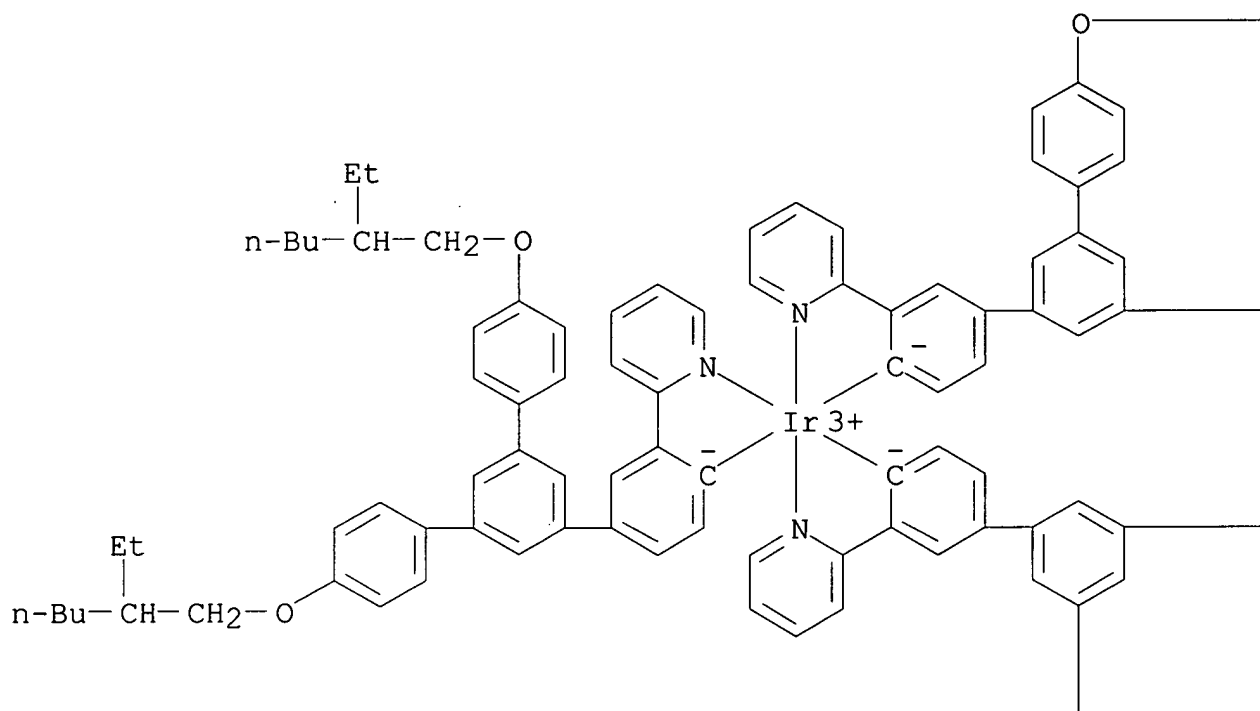
PAGE 1-B



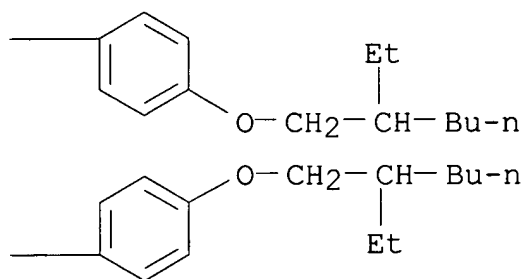
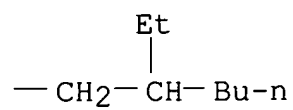
RN 453538-23-3 HCA  
 CN Iridium, tris[4'''-[(2-ethylhexyl)oxy]-5'-[4-[(2-ethylhexyl)oxy]phenyl]-3-(2-pyridinyl-.kappa.N) [1,1':3',1''-

terphenyl]-4-yl-.kappa.C]-, (OC-6-22)- (9CI) (CA INDEX NAME)

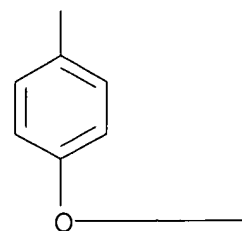
PAGE 1-A



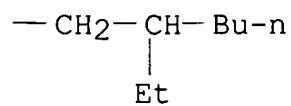
PAGE 1-B



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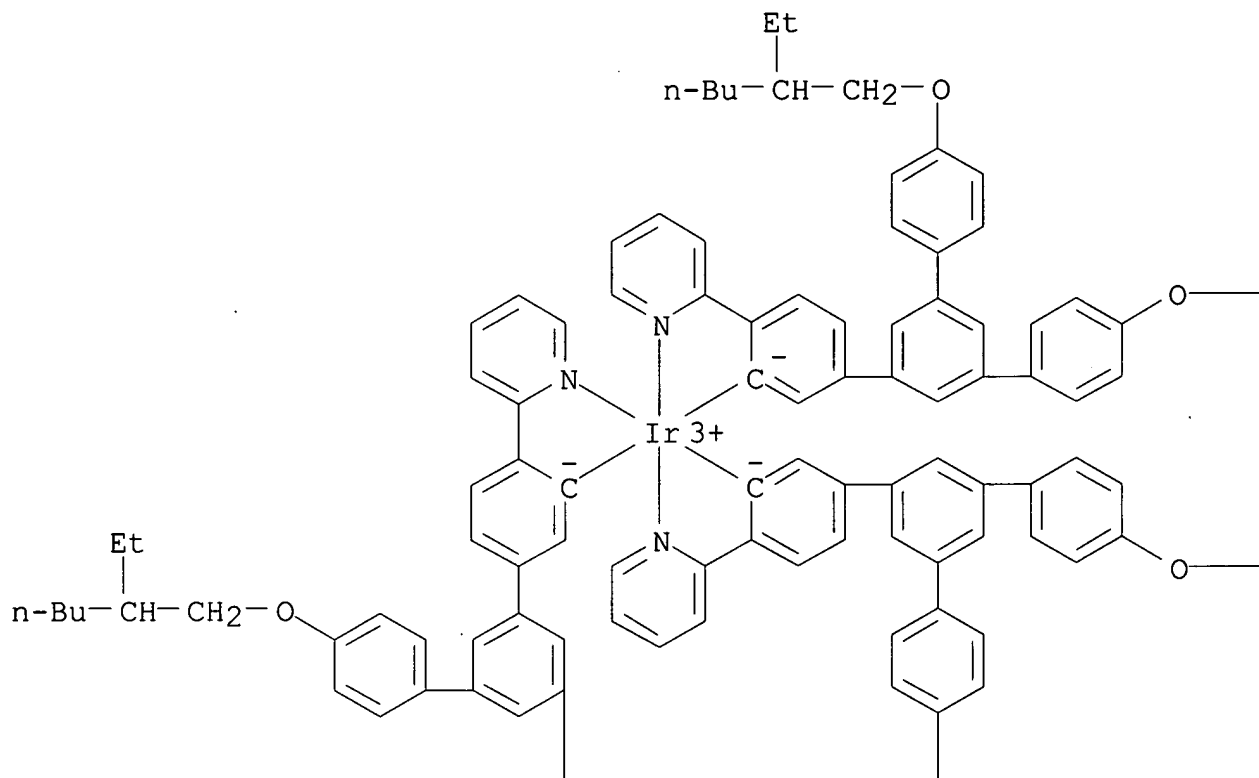




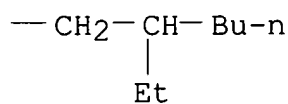
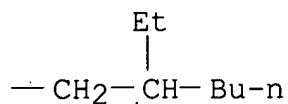
RN 453538-24-4 HCA

CN Iridium, tris[4'''-[(2-ethylhexyl)oxy]-5'-[4-[(2-ethylhexyl)oxy]phenyl]-4-(2-pyridinyl-.kappa.N)[1,1':3',1''-terphenyl]-3-yl-.kappa.C]-, (OC-6-22)- (9CI) (CA INDEX NAME)

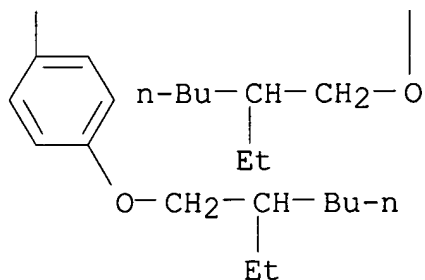
PAGE 1-A



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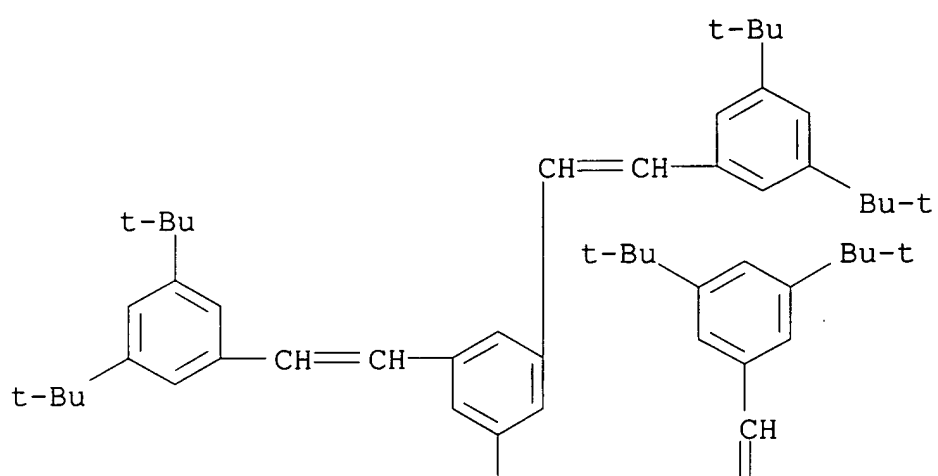


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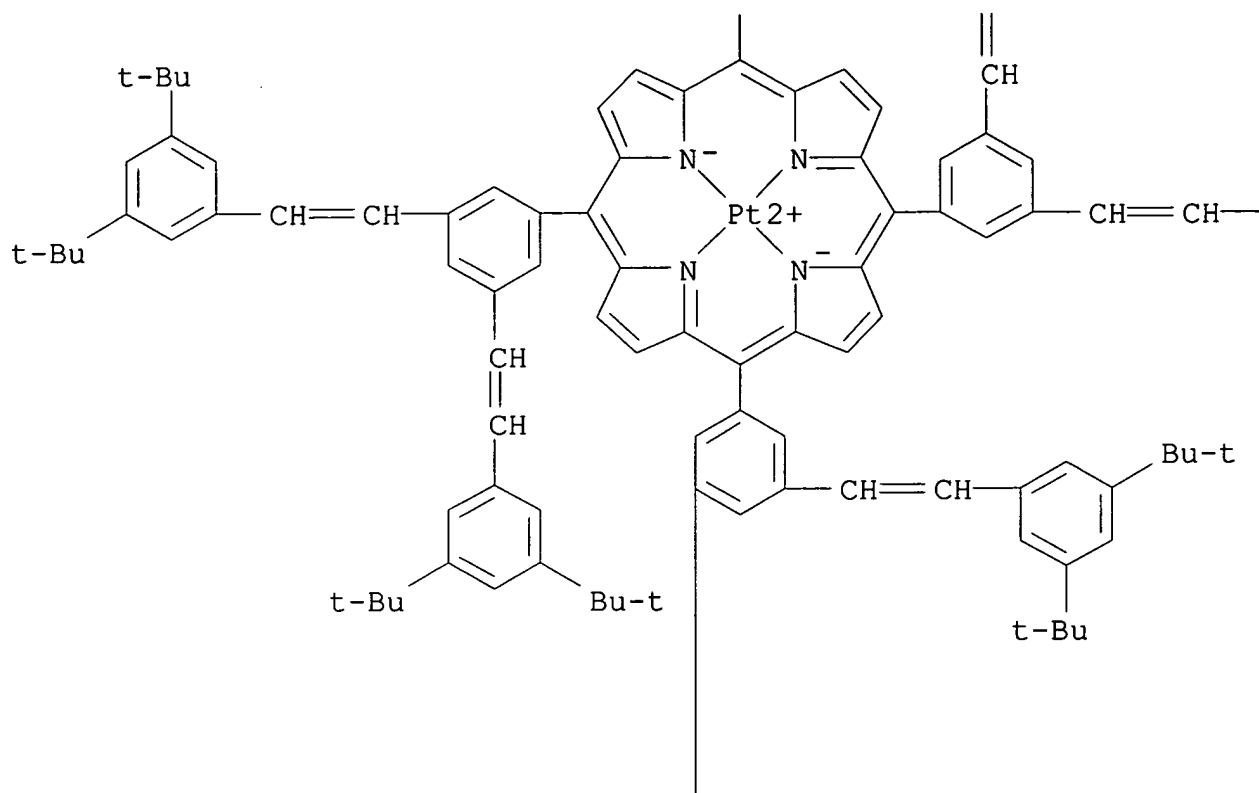


RN 453538-25-5 HCA  
 CN Platinum, [5,10,15,20-tetrakis[3,5-bis[2-[3,5-bis(1,1-dimethylethyl)phenyl]ethenyl]phenyl]-21H,23H-porphinato(2-)-  
 .kappa.N21,.kappa.N22,.kappa.N23,.kappa.N24]-, (SP-4-1)- (9CI) (CA  
 INDEX NAME)

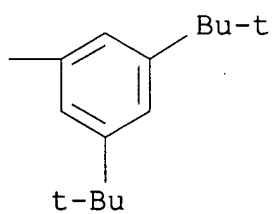
PAGE 1-A



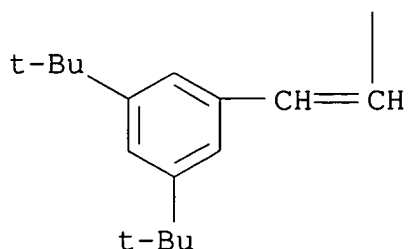
PAGE 2-A



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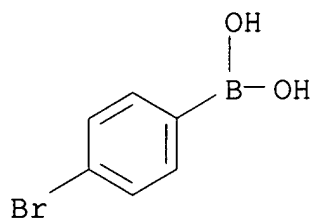


IT 5467-74-3, 4-Bromophenylboronic acid 40000-20-2  
61676-62-8, 2-Isopropoxy-4,4,5,5-tetramethyl-1,3,2-dioxaborolane 89598-96-9, 3-Bromophenylboronic acid 453530-49-9

(metal-contg. dendrimers and their prodn. and blends contg. them and **light-emitting** devices using them)

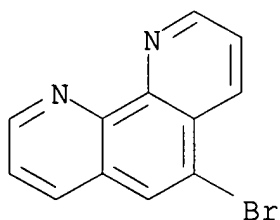
RN 5467-74-3 HCA

CN Boronic acid, (4-bromophenyl)- (9CI) (CA INDEX NAME)



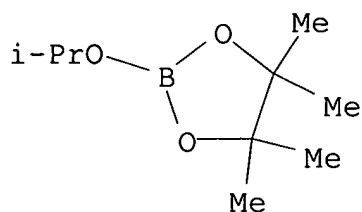
RN 40000-20-2 HCA

CN 1,10-Phenanthroline, 5-bromo- (9CI) (CA INDEX NAME)



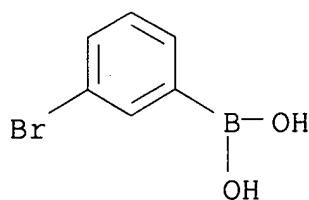
RN 61676-62-8 HCA

CN 1,3,2-Dioxaborolane, 4,4,5,5-tetramethyl-2-(1-methylethoxy)- (9CI)  
(CA INDEX NAME)



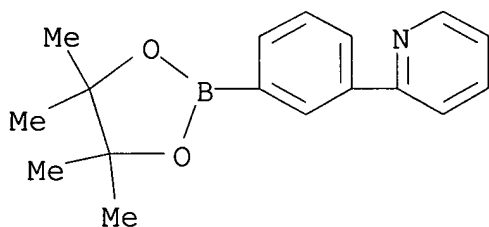
RN 89598-96-9 HCA

CN Boronic acid, (3-bromophenyl)- (9CI) (CA INDEX NAME)



RN 453530-49-9 HCA

CN Pyridine, 2-[3-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl]- (9CI) (CA INDEX NAME)



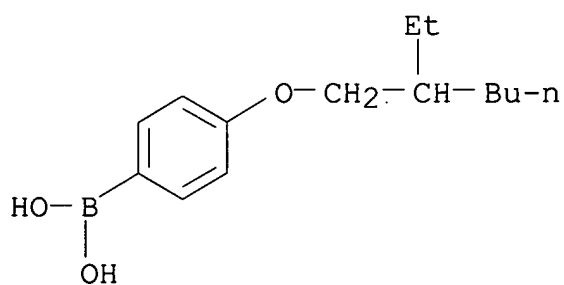
IT **452369-36-7P 453530-48-8P 453530-53-5P**

**453538-21-1P 453538-27-7P**

(metal-contg. dendrimers and their prodn. and blends contg. them and **light-emitting** devices using them)

RN 452369-36-7 HCA

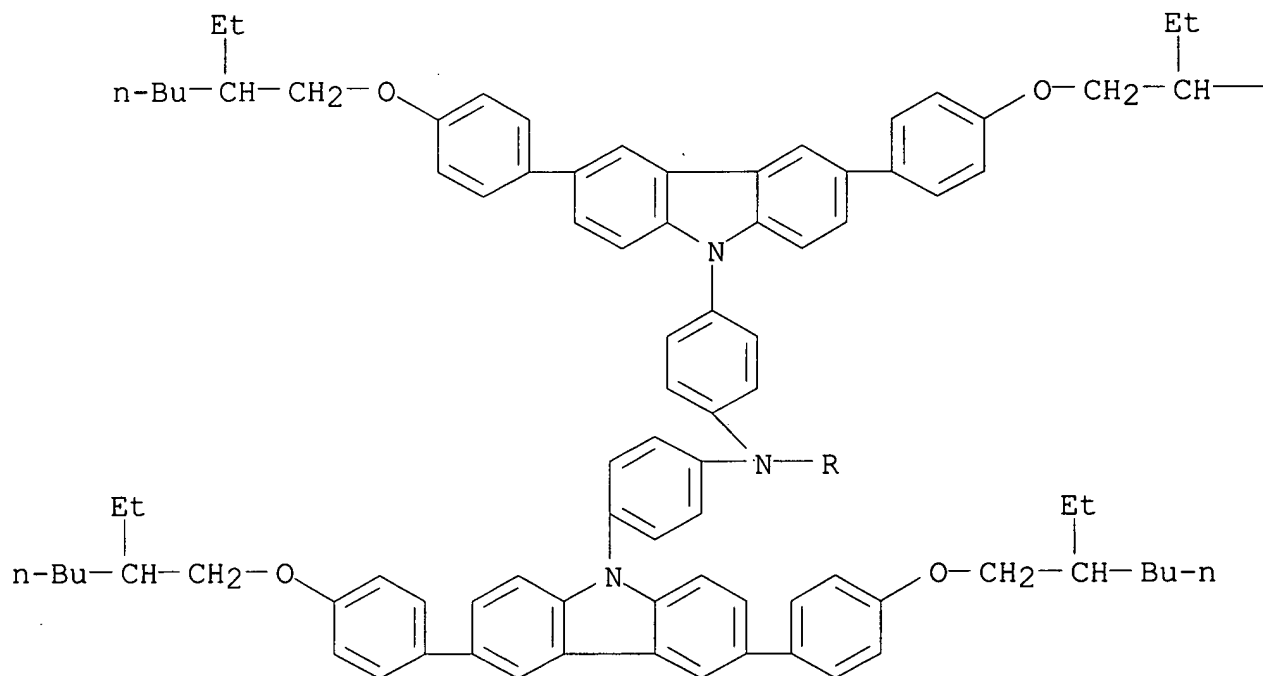
CN Boronic acid, [4-[(2-ethylhexyl)oxy]phenyl]- (9CI) (CA INDEX NAME)



RN 453530-48-8 HCA

CN Benzenamine, 4-[3,6-bis[4-[(2-ethylhexyl)oxy]phenyl]-9H-carbazol-9-yl]-N,N-bis[4-[3,6-bis[4-[(2-ethylhexyl)oxy]phenyl]-9H-carbazol-9-yl]phenyl]- (9CI) (CA INDEX NAME)

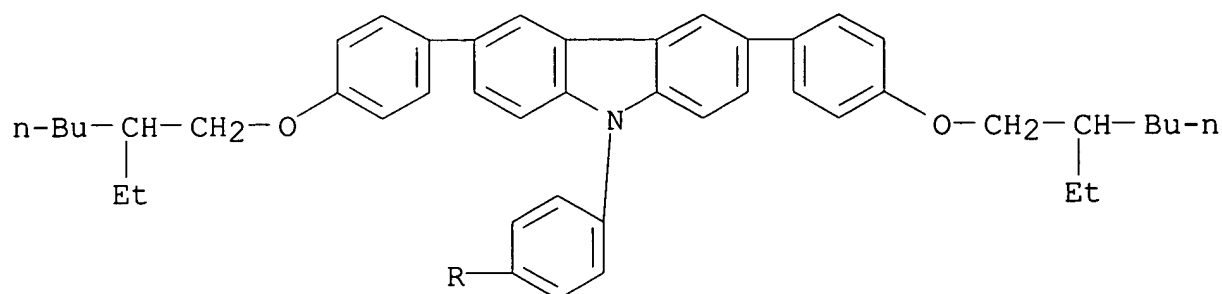
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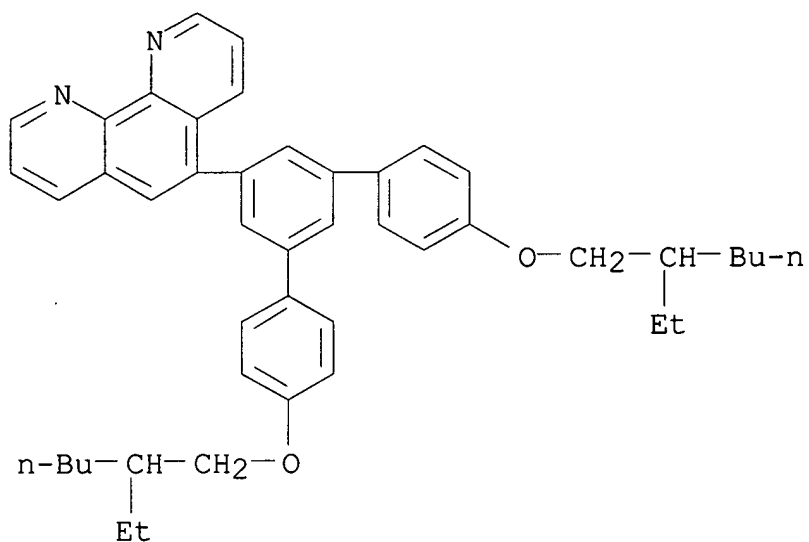
— Bu-n

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RN 453530-53-5 HCA

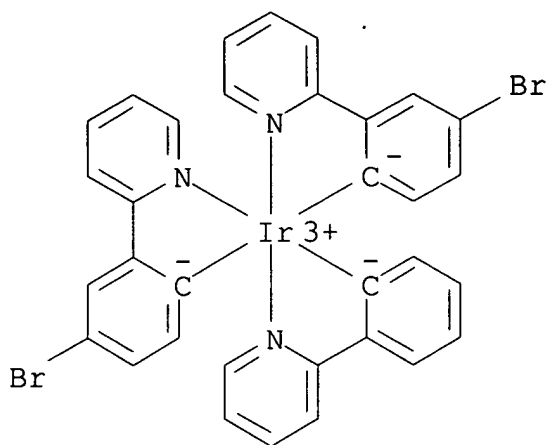
CN 1,10-Phenanthroline, 5-[4,4''-bis[(2-ethylhexyl)oxy][1,1':3',1''-terphenyl]-5'-yl]- (9CI) (CA INDEX NAME)



RN 453538-21-1 HCA

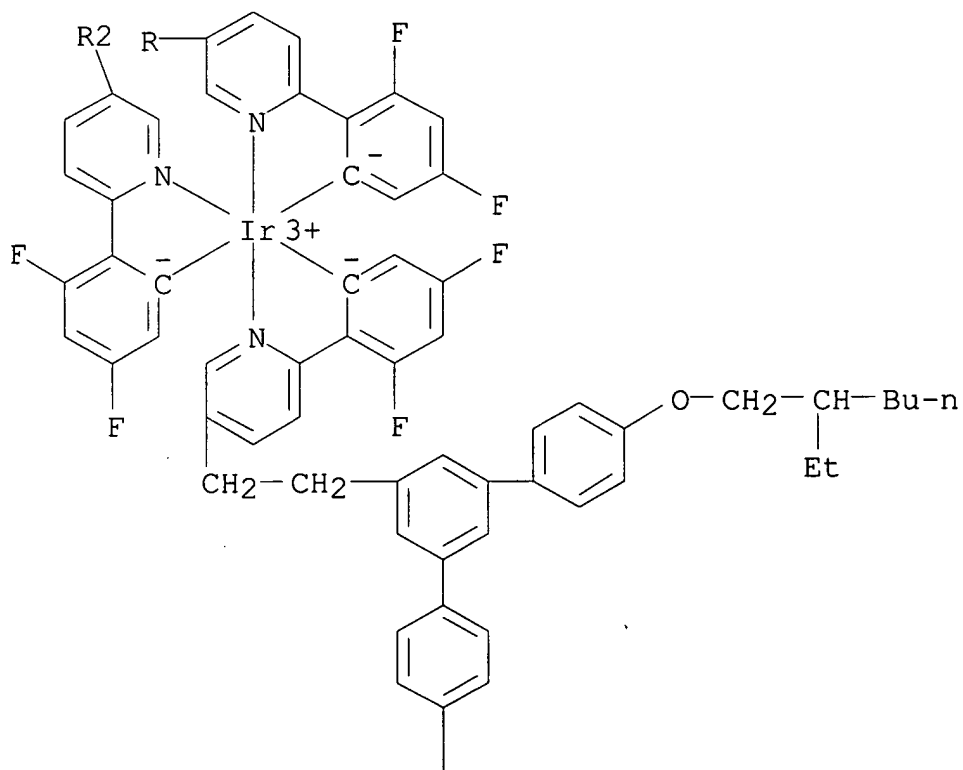
CN Iridium, bis[4-bromo-2-(2-pyridinyl-κN)phenyl-κC][2-(2-pyridinyl-κN)phenyl-κC]-, (OC-6-43)- (9CI) (CA INDEX NAME)



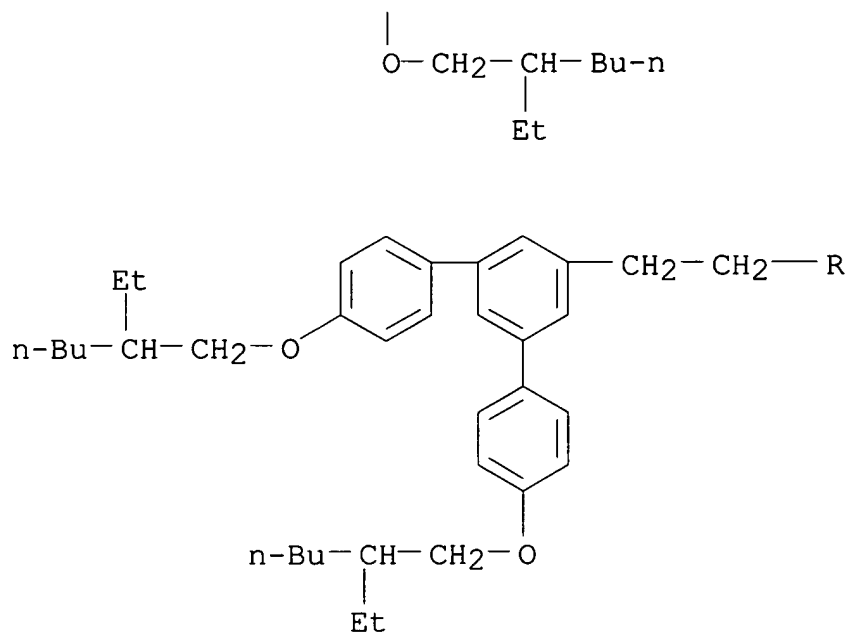


RN 453538-27-7 HCA  
 CN Iridium, tris[2-[5-[2-[4,4''-bis[(2-ethylhexyl)oxy][1,1':3',1''-terphenyl]-5'-yl]ethyl]-2-pyridinyl-.kappa.N]-3,5-difluorophenyl-.kappa.C]-, (OC-6-22)- (9CI) (CA INDEX NAME)

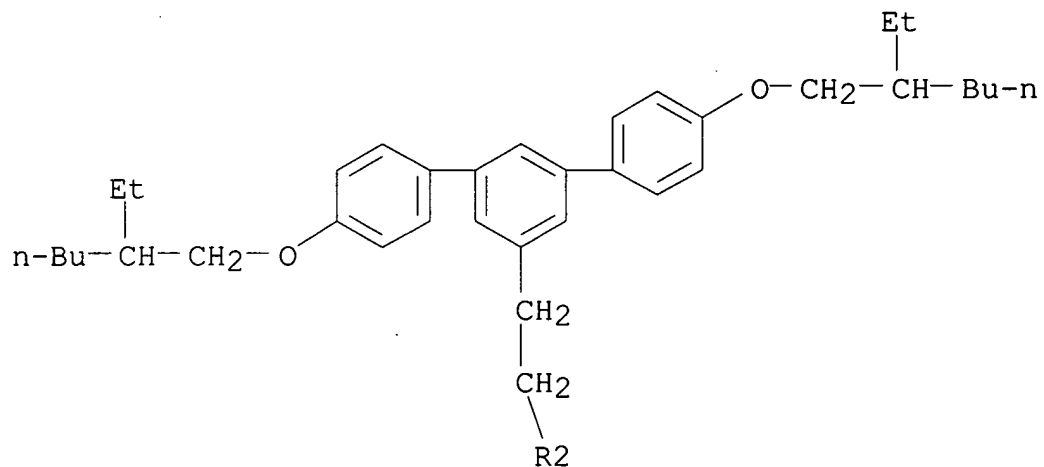
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IC ICM C08K005-56  
 ICS C09K011-00; C09K011-06; H01L051-00; H01L051-30; C08G083-00  
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 37, 76, 78

ST organometallic dendrimer **light emitting** device

IT Luminescent substances

(**electroluminescent**; metal-contg. dendrimers and their  
prodn. and blends contg. them and **light-**  
**emitting** devices using them)

IT **Electroluminescent** devices

(metal-contg. dendrimers and their prodn. and blends contg. them  
and **light-emitting** devices using them)

IT Dendritic polymers

Organometallic compounds

(metal-contg. dendrimers and their prodn. and blends contg. them  
and **light-emitting** devices using them)

IT **66-71-7D**, 1,10-Phenanthroline, reaction products with  
organometallic dendrimers **366-18-7D**, 2,2'-Dipyridyl, reaction  
products with organometallic dendrimers **4733-39-5D**,  
Bathocuproin, reaction products with organometallic dendrimers  
11104-93-1D, Nitrogen oxide, reaction products with organometallic  
dendrimers **72914-19-3D**, reaction products with organometallic  
dendrimers

(metal-contg. dendrimers and their prodn. and blends contg. them  
and **light-emitting** devices using them)

IT 340026-47-3 454180-93-9

(metal-contg. dendrimers and their prodn. and blends contg. them  
and **light-emitting** devices using them)

IT 453530-55-7P 453538-19-7P 453538-20-0P **453538-22-2P**

**453538-23-3P 453538-24-4P 453538-25-5P**

453538-26-6P 453559-39-2P 453560-17-3P

(metal-contg. dendrimers and their prodn. and blends contg. them  
and **light-emitting** devices using them)

IT 106-41-2, 4-Bromophenol 109-04-6, 2-Bromopyridine 121-43-7,  
Trimethyl borate 626-39-1, 1,3,5-Tribromobenzene 1008-89-5,  
2-Phenylpyridine 1184-63-0, Europium trisacetate 1461-22-9  
1791-26-0, 4-Vinylbenzaldehyde 4316-58-9, Tris(4-bromophenyl)amine  
**5467-74-3**, 4-Bromophenylboronic acid 6825-20-3,  
3,6-Dibromocarbazole 7511-49-1 7646-69-7, Sodium hydride  
10025-83-9, Iridium trichloride 25519-07-7, Terbium trisacetate  
**40000-20-2** 56990-02-4, 3,5-Dibromobenzaldehyde  
**61676-62-8**, 2-Isopropoxy-4,4,5,5-tetramethyl-1,3,2-  
dioxaborolane **89598-96-9**, 3-Bromophenylboronic acid  
223574-14-9 240810-88-2 **453530-49-9**

(metal-contg. dendrimers and their prodn. and blends contg. them  
and **light-emitting** devices using them)

IT 4373-60-8P 63996-36-1P 164352-24-3P 355017-81-1P

355017-82-2P 452369-35-6P **452369-36-7P** 452369-39-0P

453524-83-9P 453530-44-4P 453530-45-5P 453530-46-6P

453530-47-7P **453530-48-8P** 453530-50-2P

**453530-53-5P** 453530-54-6P 453530-56-8P 453530-70-6P

**453538-21-1P 453538-27-7P 453560-26-4P**

(metal-contg. dendrimers and their prodn. and blends contg. them and **light-emitting** devices using them)

L98 ANSWER 13 OF 15 HCA COPYRIGHT 2005 ACS on STN

137:25995 Organic blue- and white-**light-emitting**

devices. Fujii, Hiroyuki (Sanyo Electric Co., Ltd., Japan). U.S. Pat. Appl. Publ. US 2002071963 A1 **20020613**, 18 pp.

(English). CODEN: USXXCO. APPLICATION: US 2001-11313 20011211.

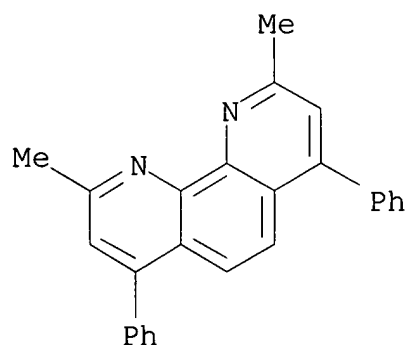
PRIORITY: JP 2000-379404 20001213.

AB Org. **light-emitting** devices are described which comprise an **anode**; a **cathode**; and a luminescent substance placed between the **anode** and the **cathode**, where the luminescent substance includes at least a mol. substance in which an absorption edge of the longest wavelength in an optical absorption spectrum in a visible light range is located at a shorter wavelength as compared to that of 4,4'-bis(carbazol-9-yl)biphenyl. Thus, white-emitting luminescent devices were fabricated and characterized which contain a mixed luminescent layer including 4,4',4''-tri(N-carbazolyl)triphenylamine as a luminescent substance and fac-tris(2-phenylpyridine)iridium as a substance **emitting light** through a triplet excited state.

IT **4733-39-5**, 2,9-Dimethyl-4,7-diphenyl-1,10-phenanthroline (electron-blocking layer; fabrication of org. white-**light-emitting** devices using)

RN 4733-39-5 HCA

CN 1,10-Phenanthroline, 2,9-dimethyl-4,7-diphenyl- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

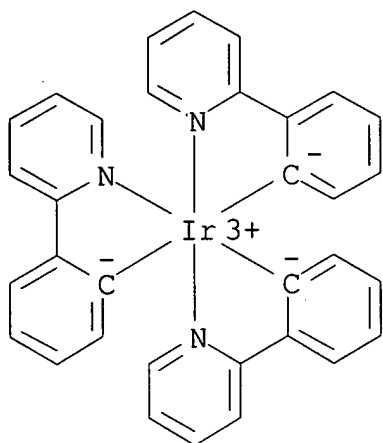


IT **94928-86-6**, fac-Tris(2-phenylpyridine)iridium  
**139092-78-7**

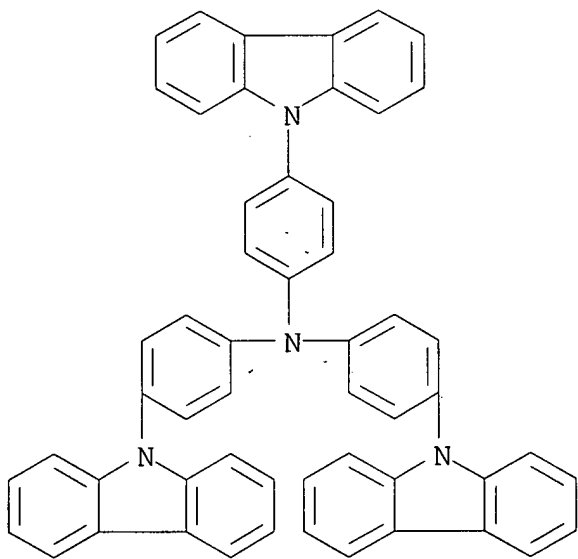
(luminescent layer of mixt. contg.; fabrication of org. white-**light-emitting** devices using)

RN 94928-86-6 HCA

CN Iridium, tris[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]-, (OC-6-22)-(9CI) (CA INDEX NAME)



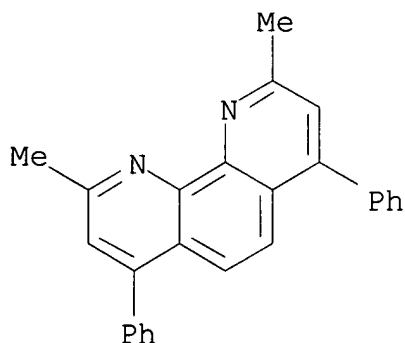
RN 139092-78-7 HCA  
 CN Benzenamine, 4-(9H-carbazol-9-yl)-N,N-bis[4-(9H-carbazol-9-yl)phenyl]- (9CI) (CA INDEX NAME)



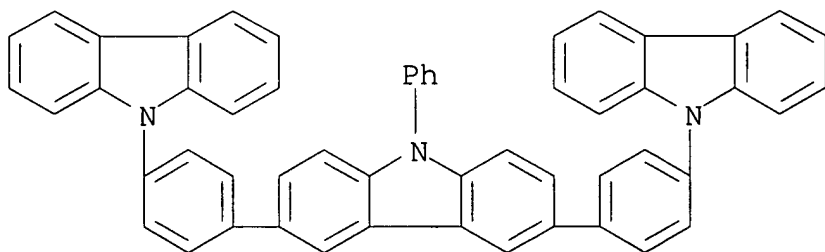
IC ICM H05B033-14  
 INCL 428690000  
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
 Section cross-reference(s): 27, 76, 78  
 ST org **light emitting** device blue white;  
**OLED** white blue  
 IT **Electroluminescent** devices  
 (blue- and white-emitting org. **electroluminescent** devices)

- IT Transition metal complexes  
(heterocyclic compd.; org. **light emitting**  
devices using luminescent material emitting through triplet  
excited state and based on)
- IT **Luminescent** substances  
(org. **light emitting** devices using  
luminescent material emitting through triplet excited state)
- IT Group IB element compounds  
Group VIII element compounds  
(org. **light emitting** devices using  
luminescent material emitting through triplet excited state and  
based on)
- IT Heterocyclic compounds  
(transition metal complexes; org. **light**  
**emitting** devices using luminescent material emitting  
through triplet excited state and based on)
- IT 50926-11-9, Indium tin oxide  
(**anode**; fabrication of org. white-**light-**  
**emitting** devices using)
- IT 221042-24-6  
(**cathode**; fabrication of org. white-**light-**  
**emitting** devices using)
- IT **4733-39-5**, 2,9-Dimethyl-4,7-diphenyl-1,10-phenanthroline  
(electron-blocking layer; fabrication of org. white-**light**  
**-emitting** devices using)
- IT 2085-33-8, Alq3  
(electron-injection layer; fabrication of org. white-  
**light-emitting** devices using)
- IT 124729-98-2  
(hole-injection layer; fabrication of org. white-**light-**  
**emitting** devices using)
- IT 123847-85-8, 4,4'-Bis[N-(1-naphthyl)-N-phenylamino]biphenyl  
(hole-transporting layer; fabrication of org. white-**light**  
**-emitting** devices using)
- IT 200052-70-6  
(luminescent layer contg.; fabrication of org. white-  
**light-emitting** devices using)
- IT **94928-86-6**, fac-Tris(2-phenylpyridine)iridium  
**139092-78-7** 434938-12-2  
(luminescent layer of mixt. contg.; fabrication of org. white-  
**light-emitting** devices using)
- IT 7439-88-5D, Iridium, compd. 7440-04-2D, Osmium, compd.  
7440-06-4D, Platinum, compd. 7440-57-5D, Gold, compd.  
(org. **light emitting** devices using  
luminescent material emitting through triplet excited state and  
contg.)

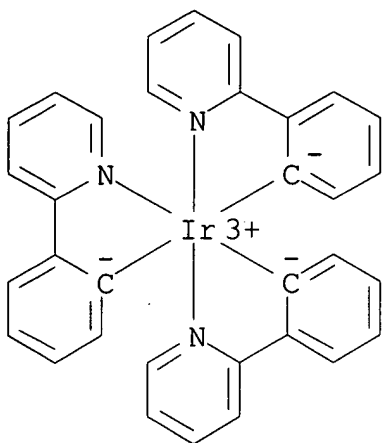
- 135:280172 Organic **electroluminescence** device. Hosokawa, Chishio (Idemitsu Kosan Co., Ltd., Japan). PCT Int. Appl. WO 2001072927 A1 **20011004**, 55 pp. DESIGNATED STATES: W: CN, IN, JP, KR; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR. (Japanese). CODEN: PIXXD2. APPLICATION: WO 2001-JP2454 20010327. PRIORITY: JP 2000-87622 20000327.
- AB An org. **electroluminescence** device including an **anode** layer, a **cathode** layer, and an **org** . **luminescent** layer held between the **anode** and **cathode** layers. The **org. luminescent** layer contains a carbazole deriv. the glass transition temp. of which is >110.degree. and a phosphorescent dopant. Even under a room-temp. condition, the triplet exciton state of the carbazole deriv. can be used, the life of the org. **electroluminescence** device is practical, and the heat resistance thereof is excellent.
- IT **4733-39-5**, 2,9-Dimethyl-4,7-diphenyl-1,10-phenanthroline **362682-10-8**  
(org. **electroluminescence** device)
- RN 4733-39-5 HCA
- CN 1,10-Phenanthroline, 2,9-dimethyl-4,7-diphenyl- (6CI, 7CI, 8CI, 9CI)  
(CA INDEX NAME)



- RN 362682-10-8 HCA
- CN 9H-Carbazole, 3,6-bis[4-(9H-carbazol-9-yl)phenyl]-9-phenyl- (9CI)  
(CA INDEX NAME)



IT **94928-86-6**, Tris(2-phenylpyridine)iridium  
 (org. **electroluminescence** device)  
 RN 94928-86-6 HCA  
 CN Iridium, tris[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]-, (OC-6-22)-  
 (9CI) (CA INDEX NAME)



IC ICM C09K011-06  
 ICS H05B033-14  
 CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
 ST org **electroluminescence** device  
 IT Dopants  
 Exciton  
 Glass transition temperature  
 Thermal resistance  
 (org. **electroluminescence** device)  
 IT 2085-33-8, Tris(8-quinolinolato)aluminum **4733-39-5**,  
 2,9-Dimethyl-4,7-diphenyl-1,10-phenanthroline 65181-78-4, TPD  
 123847-85-8, .alpha.-NPD **362682-10-8**  
 (org. **electroluminescence** device)  
 IT **94928-86-6**, Tris(2-phenylpyridine)iridium  
 (org. **electroluminescence** device)  
 L98 ANSWER 15 OF 15 HCA COPYRIGHT 2005 ACS on STN  
 135:263839 Highly efficient phosphorescence from organic **light**  
**-emitting** devices with an exciton-block layer. Ikai,  
 Masamichi; Tokito, Shizuo; Sakamoto, Youichi; Suzuki, Toshiyasu;  
 Taga, Yasunori (Toyota Central Research and Development  
 Laboratories, Incorporated, Nagakute, Aichi, 480-1192, Japan).  
 Applied Physics Letters, 79(2), 156-158 (English) **2001**.  
 CODEN: APPLAB. ISSN: 0003-6951. Publisher: American Institute of  
 Physics.  
 AB One of the keys to highly efficient phosphorescent **emission**



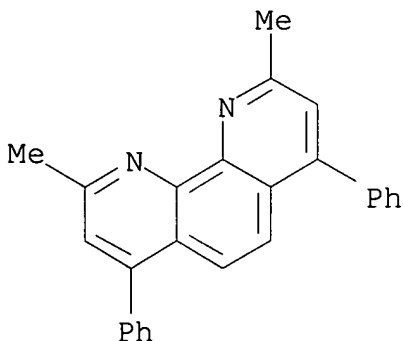
in org. **light-emitting** devices is to confine triplet excitons generated within the emitting layer. Starburst perfluorinated phenylenes (C60F42) are used as a hole- and exciton-block layer, and the hole-transport substance, 4,4',4''-tri(N-carbazolyl) triphenylamine, as a host for the phosphorescent dopant dye in the emitting layer. The max. external quantum efficiency is 19.2%, and it is >15%, even at high current densities of 10-20 mA/cm<sup>2</sup>, providing several times the brightness of fluorescent tubes for lighting. The onset voltage of the **electroluminescence** is .gtoreq.2.4 V and the peak power efficiency is 70-72 lm/W, suitable for low-power display devices.

IT **4733-39-5**

(highly efficient phosphorescence from org. **light-emitting** devices with exciton-block layer)

RN 4733-39-5 HCA

CN 1,10-Phenanthroline, 2,9-dimethyl-4,7-diphenyl- (6CI, 7CI, 8CI, 9CI)  
(CA INDEX NAME)

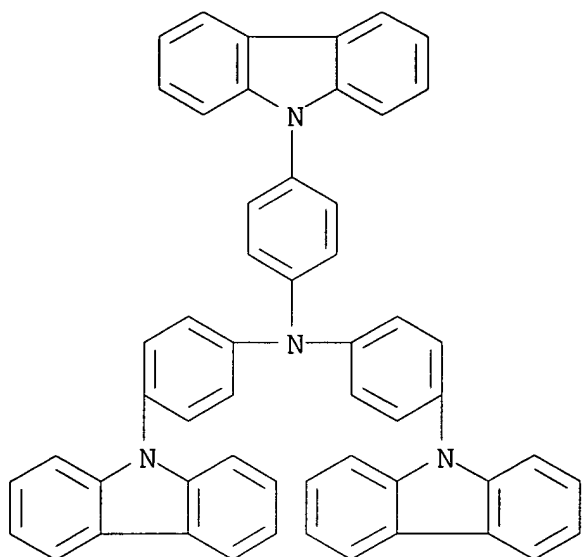


IT **139092-78-7**

(highly efficient phosphorescence from org. **light-emitting** devices with exciton-block layer)

RN 139092-78-7 HCA

CN Benzenamine, 4-(9H-carbazol-9-yl)-N,N-bis[4-(9H-carbazol-9-yl)phenyl]- (9CI) (CA INDEX NAME)

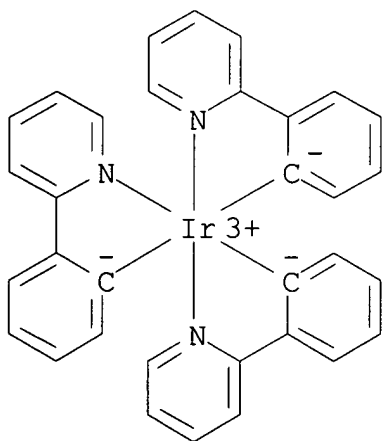


IT **94928-86-6**

(highly efficient phosphorescence from org. **light-emitting** devices with exciton-block layer)

RN 94928-86-6 HCA

CN Iridium, tris[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]-, (OC-6-22)-(9CI) (CA INDEX NAME)



CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 22, 41, 76

ST phosphorescence **org** LED **luminous** quantum efficiency

IT Bias potential  
Current density

**Electroluminescent devices**

Energy level

HOMO (molecular orbital)

Hole transport

Ionization potential

LUMO (molecular orbital)

Phosphorescence

(highly efficient phosphorescence from org. **light-emitting** devices with exciton-block layer)

IT Light

(luminosity; highly efficient phosphorescence from org. **light-emitting** devices with exciton-block layer)

IT Band gap

(optical; highly efficient phosphorescence from org. **light-emitting** devices with exciton-block layer)

IT Exciton

(triplet; highly efficient phosphorescence from org. **light-emitting** devices with exciton-block layer)IT **4733-39-5**(highly efficient phosphorescence from org. **light-emitting** devices with exciton-block layer)IT 2085-33-8 7429-90-5, Aluminum, properties 7789-24-4, Lithium fluoride, properties 50926-11-9, Indium tin oxide 123847-85-8 **139092-78-7** 262422-68-4 262422-70-8(highly efficient phosphorescence from org. **light-emitting** devices with exciton-block layer)IT **94928-86-6**(highly efficient phosphorescence from org. **light-emitting** devices with exciton-block layer)

=&gt; d his 199-

FILE 'LREGISTRY' ENTERED AT 15:22:30 ON 08 NOV 2005

L99 STR

FILE 'REGISTRY' ENTERED AT 15:33:05 ON 08 NOV 2005

L100 STR L99

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L102 SCR 2043

L103 5 S L100 NOT L102 SSS SAM SUB=L7

L104 121 S L100 NOT L102 SSS FUL SUB=L7

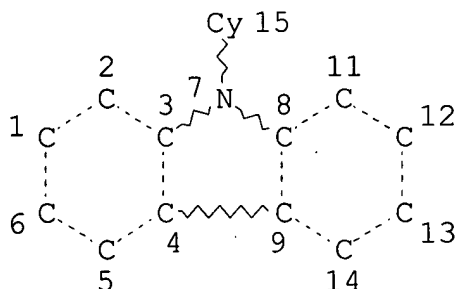
L105 STR L100

L106 106 S L105 NOT L102 SSS FUL SUB=L7

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L107 76 S L104  
L108 55 S L106  
L109 39 S L107 AND L37  
L110 46 S L108 AND L37  
L111 18 S L109 AND (L28-L32)  
L112 18 S L109 AND L34  
L113 12 S L111 AND L112  
L114 36 S L110 AND (L28-L32)  
L115 18 S L110 AND L34  
L116 17 S L114 AND L115  
L117 17 S (L115 OR L116) NOT (L78 OR L98)  
L118 4 S L117 AND (1840-2002/PY OR 1840-2002/PRY)

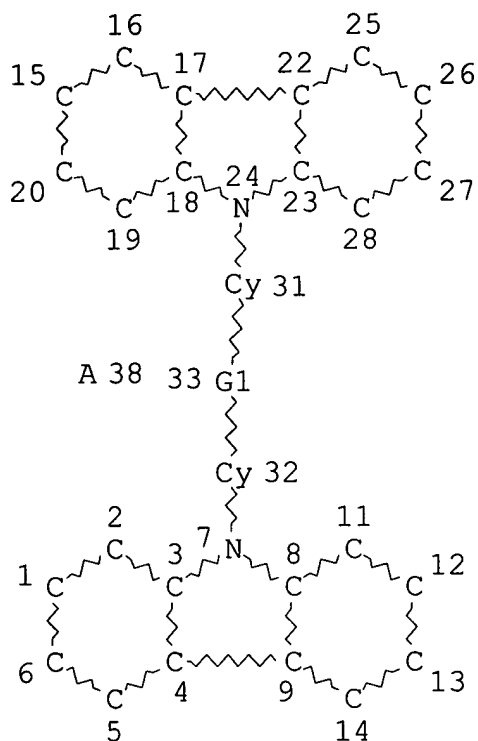
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L5 STR



NODE ATTRIBUTES:  
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GGCAT IS UNS AT 15  
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
RSPEC I  
NUMBER OF NODES IS 14

STEREO ATTRIBUTES: NONE  
L7 4078 SEA FILE=REGISTRY SSS FUL L5  
L100 STR



A @36

REP G1=(1-8) 36  
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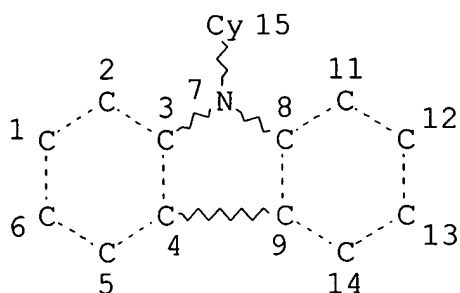
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 NUMBER OF NODES IS 31

STEREO ATTRIBUTES: NONE  
 L102 SCR 2043  
 L104 121 SEA FILE=REGISTRY SUB=L7 SSS FUL L100 NOT L102

100.0% PROCESSED 1453 ITERATIONS  
 SEARCH TIME: 00.00.01

121 ANSWERS

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 L5 STR



## NODE ATTRIBUTES:

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GGCAT IS UNS AT 15

DEFAULT ECLEVEL IS LIMITED

## GRAPH ATTRIBUTES:

RSPEC I

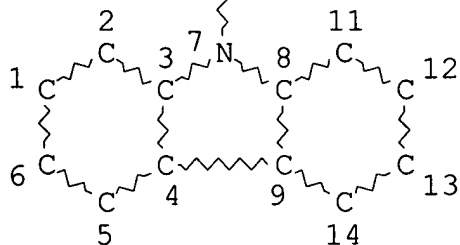
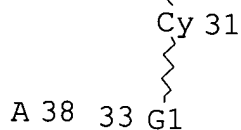
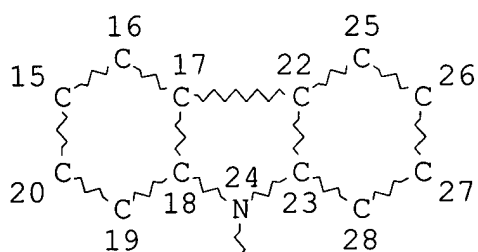
NUMBER OF NODES IS 14

## STEREO ATTRIBUTES: NONE

L7 4078 SEA FILE=REGISTRY SSS FUL L5

L102 SCR 2043

L105 STR



Cy @36

REP G1=(1-8) 36  
NODE ATTRIBUTES:  
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GGCAT IS UNS AT 31  
GGCAT IS UNS AT 32  
DEFAULT ECLEVEL IS LIMITED

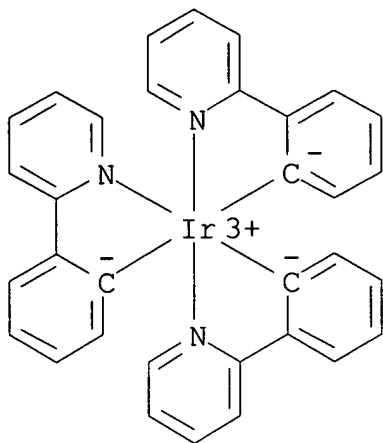
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NUMBER OF NODES IS 31

STEREO ATTRIBUTES: NONE  
L106 106 SEA FILE=REGISTRY SUB=L7 SSS FUL L105 NOT L102

100.0% PROCESSED 1453 ITERATIONS 106 ANSWERS  
SEARCH TIME: 00.00.01

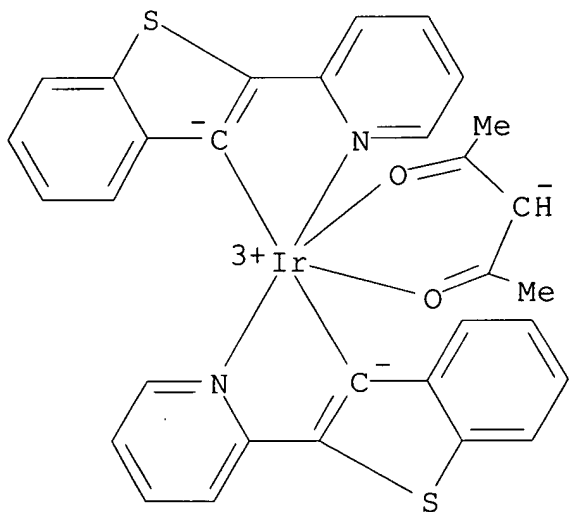
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L118 ANSWER 1 OF 4 HCA COPYRIGHT 2005 ACS on STN  
141:30891 Organic **electroluminescent** device and display.  
Fukuda, Mitsuhiro; Kita, Hiroshi; Yamada, Taketoshi (Japan). U.S.  
Pat. Appl. Publ. US 2004110031 A1 20040610, 37 pp. (English).  
CODEN: USXXCO. APPLICATION: US 2003-718360 20031120. PRIORITY: JP  
2002-342192 20021126.  
AB Disclosed is an org. **electroluminescent** device comprising  
a component layer including a **light emission**  
layer, wherein the **light emission** layer contains  
a phosphorescent compd., and the component layer contains a compd.  
represented by A-(Z)n, [A = (un)substituted arom. ring residue; n =  
3-6 integer; and Z = monovalent org. group represented by -L-Cz, [L  
= chem. bond and divalent linking group; Cz = (un)substituted  
carbazole residue], provided that A-(Z)n does not have an n-fold  
axis of symmetry].  
IT **94928-86-6 343978-79-0 376367-93-0**  
(org. **electroluminescent** device and display having  
**light emitting** layer contg. phosphorescent  
substance)  
RN 94928-86-6 HCA  
CN Iridium, tris[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]-, (OC-6-22)-  
(9CI) (CA INDEX NAME)



RN 343978-79-0 HCA

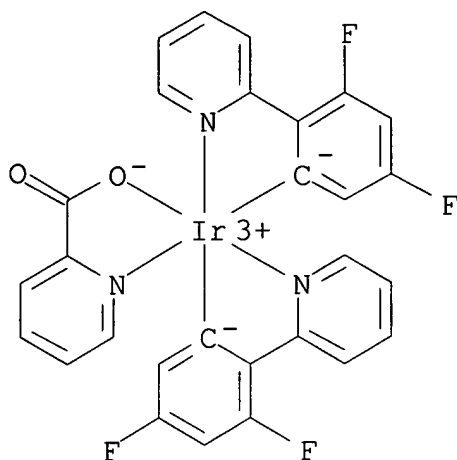
CN Iridium, (2,4-pentanedionato-.kappa.O,.kappa.O')bis[2-(2-pyridinyl-.kappa.N)benzo[b]thien-3-yl-.kappa.C]-, (OC-6-33)- (9CI) (CA INDEX NAME)



RN 376367-93-0 HCA

CN Iridium, bis[3,5-difluoro-2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C] (2-pyridinecarboxylato-.kappa.N1,.kappa.O2)- (9CI) (CA INDEX NAME)



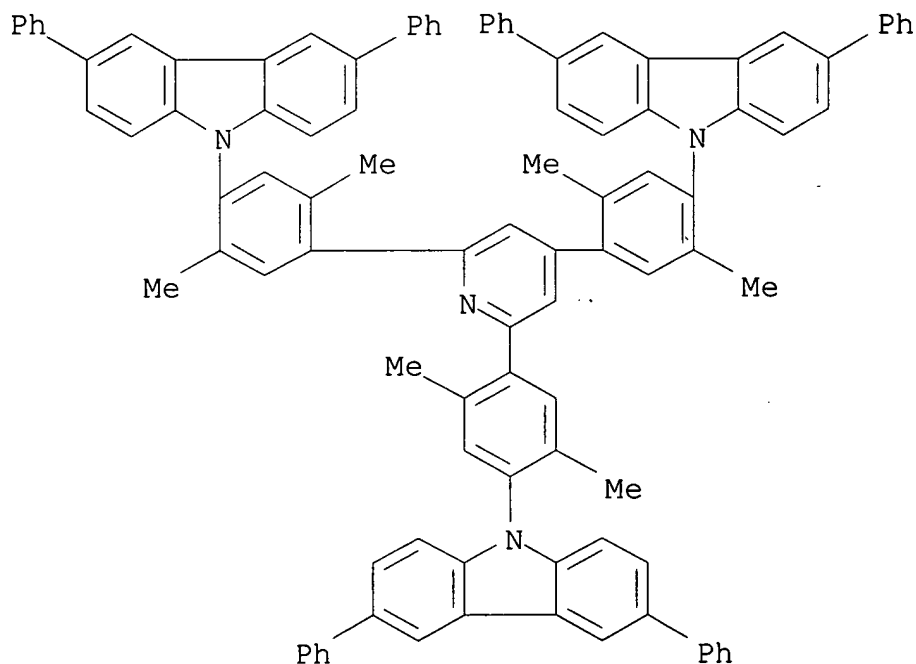


IT 699119-40-9P 699119-54-5P 699119-77-2P  
699120-00-8P

(org. **electroluminescent** device and display having  
**light emitting** layer contg. phosphorescent  
substance)

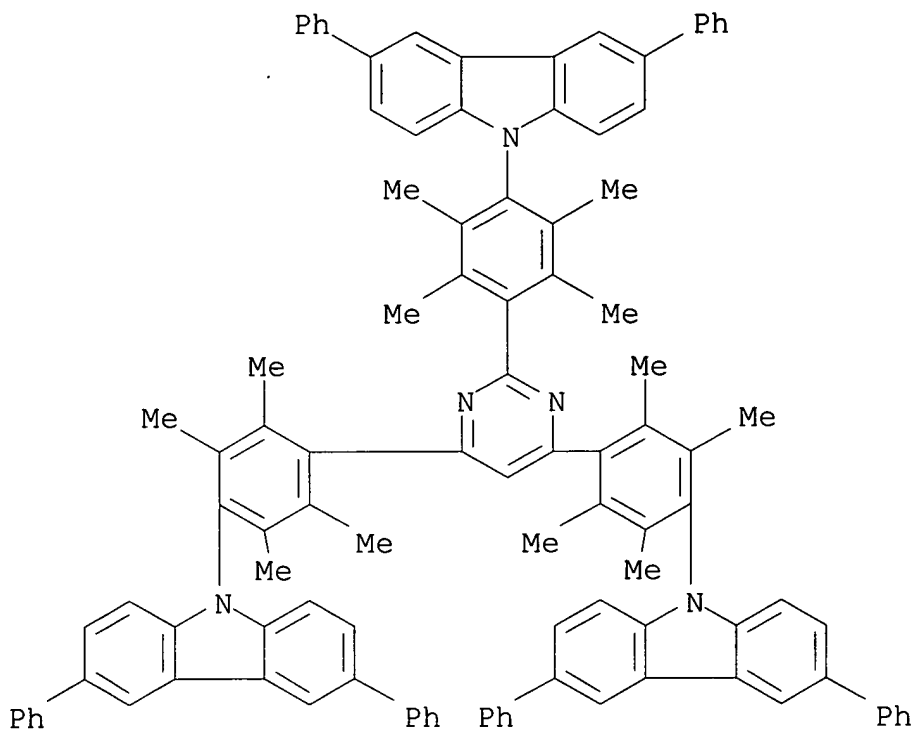
RN 699119-40-9 HCA

CN 9H-Carbazole, 9,9',9''-[2,4,6-pyridinetriyltris(2,5-dimethyl-4,1-phenylene)]tris[3,6-diphenyl- (9CI) (CA INDEX NAME)



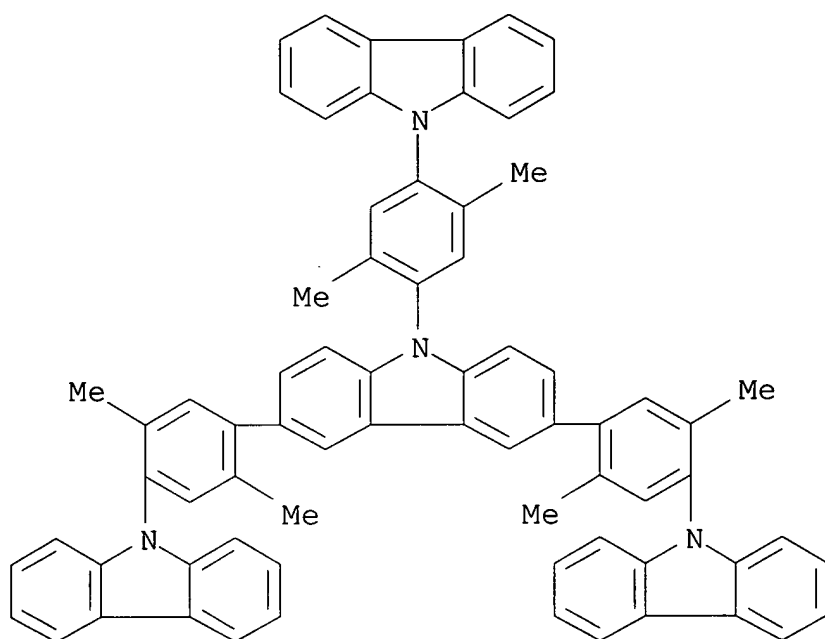
RN 699119-54-5 HCA

CN 9H-Carbazole, 9,9',9''-[2,4,6-pyrimidinetriyltris(2,3,5,6-tetramethyl-4,1-phenylene)]tris[3,6-diphenyl- (9CI) (CA INDEX NAME)

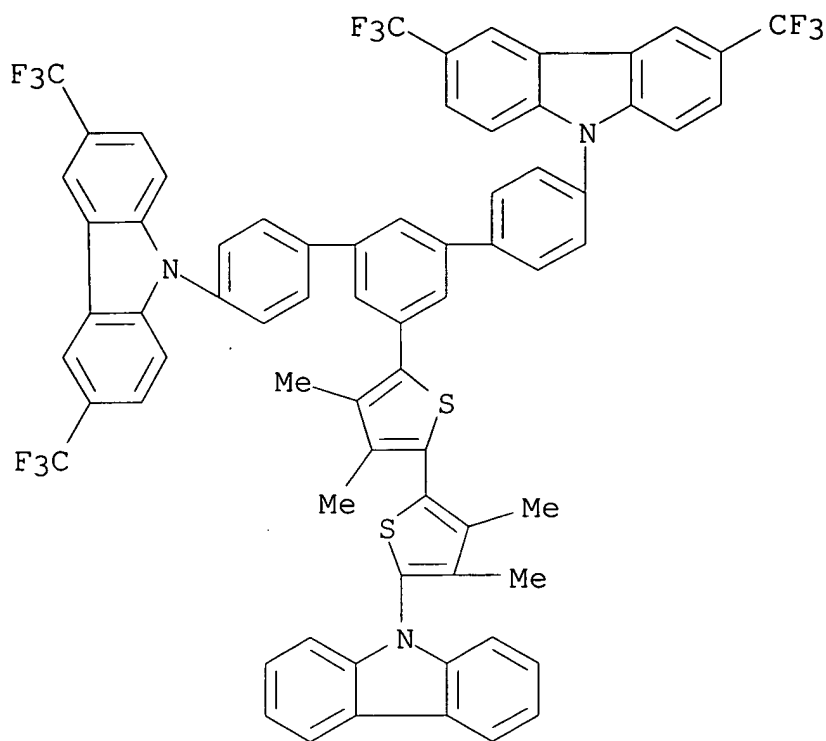


RN 699119-77-2 HCA

CN 9H-Carbazole, 3,6,9-tris[4-(9H-carbazol-9-yl)-2,5-dimethylphenyl]-  
(9CI) (CA INDEX NAME)



RN 699120-00-8 HCA  
 CN 9H-Carbazole, 9,9'-[5'-[5'-(9H-carbazol-9-yl)-3,3',4,4'-  
 tetramethyl[2,2'-bithiophen]-5-yl][1,1':3',1''-terphenyl]-4,4''-  
 diyl]bis[3,6-bis(trifluoromethyl)- (9CI) (CA INDEX NAME)

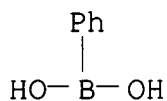


IT 98-80-6

(org. **electroluminescent** device and display having  
**light emitting** layer contg. phosphorescent  
 substance)

RN 98-80-6 HCA

CN Boronic acid, phenyl- (9CI) (CA INDEX NAME)

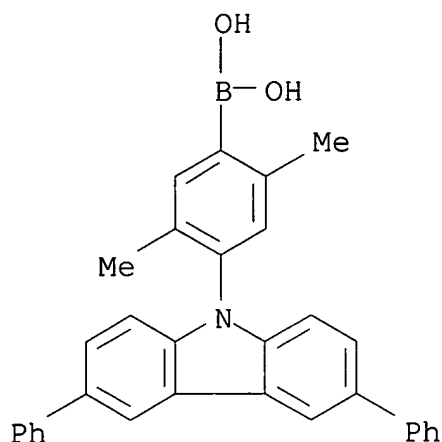


IT 699119-14-7P 699119-26-1P

(org. **electroluminescent** device and display having  
**light emitting** layer contg. phosphorescent  
 substance)

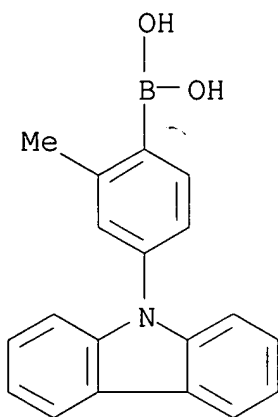
RN 699119-14-7 HCA

CN Boronic acid, [4-(3,6-diphenyl-9H-carbazol-9-yl)-2,5-dimethylphenyl]-  
 (9CI) (CA INDEX NAME)



RN 699119-26-1 HCA

CN Boronic acid, [4-(9H-carbazol-9-yl)-2-methylphenyl]- (9CI) (CA INDEX NAME)



IC ICM H05B033-14

INCL 428690000; 428917000; 313504000; 313506000; 257102000; 257103000

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 74

ST org **electroluminescent** device display phosphorescent substance

IT **Electroluminescent** devices  
(displays; org. **electroluminescent** device and display having **light emitting** layer contg. phosphorescent substance)

IT **Luminescent** screens  
(**electroluminescent**; org. **electroluminescent** device and display having

light emitting layer contg. phosphorescent substance)

IT **Electroluminescent** devices

Phosphorescent substances

(org. **electroluminescent** device and display having light emitting layer contg. phosphorescent substance)

IT 699119-91-0P

(org. **electroluminescent** device and display having light emitting layer contg. phosphorescent substance)

IT **94928-86-6 343978-79-0 376367-93-0**

(org. **electroluminescent** device and display having light emitting layer contg. phosphorescent substance)

IT 699119-36-3P **699119-40-9P** 699119-44-3P 699119-49-8P  
**699119-54-5P** 699119-58-9P 699119-61-4P 699119-65-8P  
 699119-69-2P 699119-73-8P **699119-77-2P** 699119-81-8P  
 699119-86-3P 699119-96-5P **699120-00-8P**

(org. **electroluminescent** device and display having light emitting layer contg. phosphorescent substance)

IT 86-74-8, 9H-Carbazole **98-80-6** 626-39-1 2408-70-0  
 36847-11-7 202865-85-8 699119-05-6

(org. **electroluminescent** device and display having light emitting layer contg. phosphorescent substance)

IT 6825-20-3P 56525-79-2P 699119-10-3P **699119-14-7P**  
 699119-23-8P **699119-26-1P** 699119-32-9P

(org. **electroluminescent** device and display having light emitting layer contg. phosphorescent substance)

L118 ANSWER 2 OF 4 HCA COPYRIGHT 2005 ACS on STN

140:50038 Organic **electroluminescent** element and its *(some of the inventors)* manufacturing method. Suzuri, Yoshiyuki; Saito, Atsushi; Kita, Hiroshi; Yamada, Taketoshi (Konica Corporation, Japan). Eur. Pat. Appl. EP 1371709 A1 20031217, 50 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK. (English). CODEN: EPXXDW. APPLICATION: EP 2003-11196 20030528. PRIORITY: JP 2002-162753 20020604. *← (early enough?)*

AB Methods of manufg. org. **electroluminescent** devices comprising a substrate supporting a **light-emitting** layer and .gtoreq.1 of a hole-injecting layer, a hole-transport layer, an electron-injecting layer, and an electron-transport layer in which the the **light-emitting** layer is adjacent to .gtoreq.1 other layer are described which entail

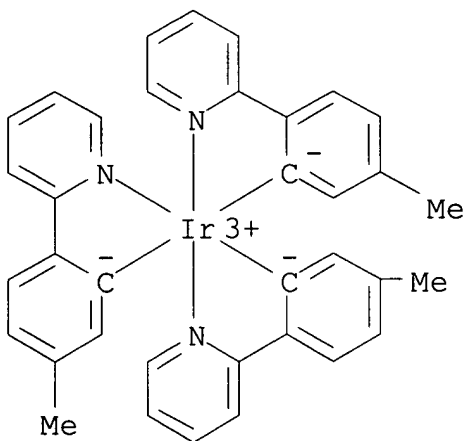
providing a first coating soln. employing a first org. solvent for one layer of the two adjacent layers and a second coating soln. employing a second solvent for the other layer, the first solvent being immiscible with the second solvent; simultaneously coating the first and second coating solns. on the substrate so that the first coating soln. is in contact with the second coating soln.; and drying the coatings. One solvent may be water while the other is an org. solvent. Alternately, a layer of a solvent which is immiscible with the solvents used for either the first or second layer coatings may be provided between the applied coating layers. The devices, including white and blue **light-emitting** devices, and illumination sources and displays using them, are also described.

IT 149005-33-4 343978-79-0 376367-93-0  
634907-40-7 635283-81-7

(org. **electroluminescent** device prodn. using wet coating methods with immiscible solvents for different layers and the devices)

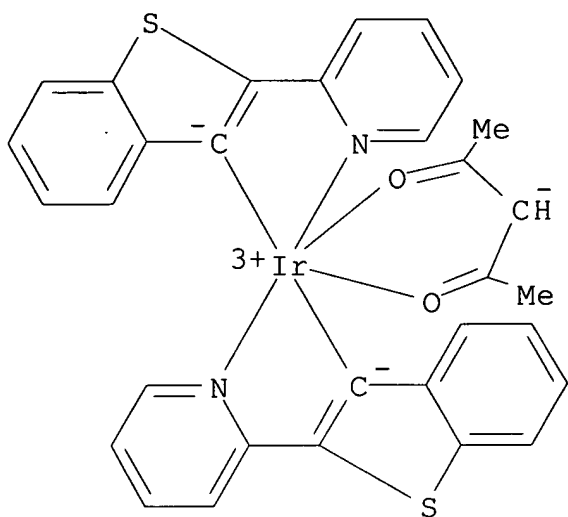
RN 149005-33-4 HCA

CN Iridium, tris[5-methyl-2-(2-pyridinyl)phenyl-C,N]-, (OC-6-22)- (CA INDEX NAME)



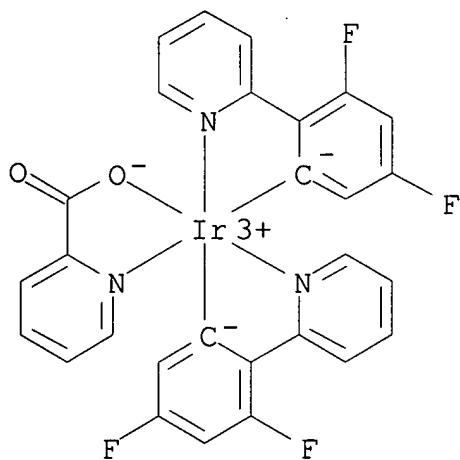
RN 343978-79-0 HCA

CN Iridium, (2,4-pentanedionato-.kappa.O,.kappa.O')bis[2-(2-pyridinyl-.kappa.N)benzo[b]thien-3-yl-.kappa.C]-, (OC-6-33)- (9CI) (CA INDEX NAME)



RN 376367-93-0 HCA

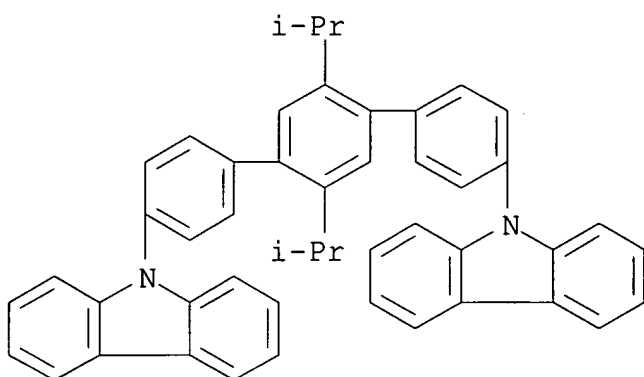
CN Iridium, bis[3,5-difluoro-2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C] (2-pyridinecarboxylato-.kappa.N1,.kappa.O2)- (9CI) (CA INDEX NAME)



RN 634907-40-7 HCA

CN 9H-Carbazole, 9,9'-[2',5'-bis(1-methylethyl)[1,1':4',1''-terphenyl]-4,4''-diyl]bis- (9CI) (CA INDEX NAME)





RN 635283-81-7 HCA

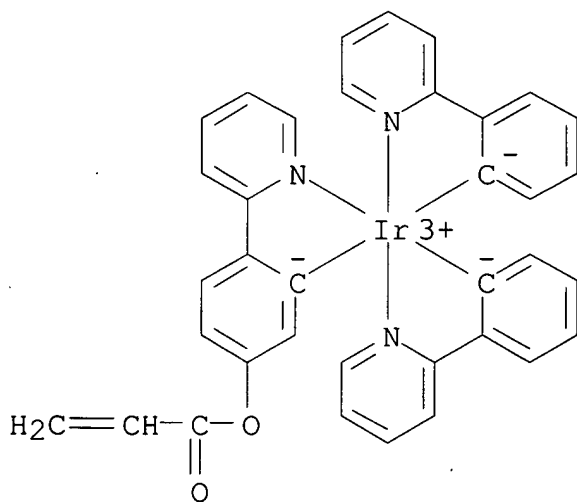
CN Iridium, [5-[(1-oxo-2-propenyl)oxy]-2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]bis[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]-, (OC-6-43)-, polymer with 2-[4-(1,1-dimethylethyl)phenyl]-5-(4'-ethenyl[1,1'-biphenyl]-4-yl)-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

CM 1

CRN 635283-80-6

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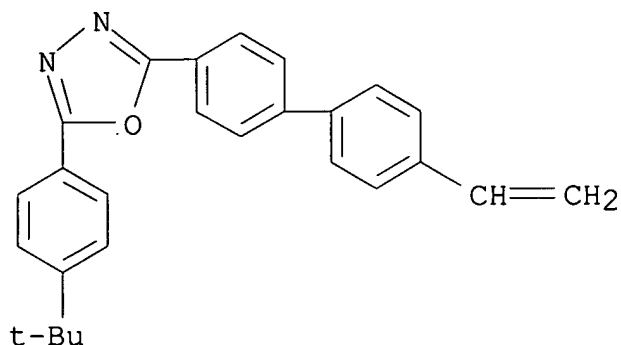
CCI CCS



CM 2

CRN 85884-56-6

CMF C26 H24 N2 O



- IC ICM C09K011-06  
ICS H05B033-14
- CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
Section cross-reference(s): 74, 76
- ST org **electroluminescent** device fabrication wet coating immiscible solvent system
- IT Coating process  
Semiconductor device fabrication  
(org. **electroluminescent** device prodn. using wet coating methods with immiscible solvents for different layers and the devices)
- IT **Electroluminescent** devices  
(org.; org. **electroluminescent** device prodn. using wet coating methods with immiscible solvents for different layers and the devices)
- IT 108-88-3, Toluene, uses 7732-18-5, Water, uses 25321-22-6, Dichlorobenzene  
(coating vehicle; org. **electroluminescent** device prodn. using wet coating methods with immiscible solvents for different layers and the devices)
- IT 25067-59-8, Polyvinylcarbazole 105035-16-3 133069-19-9  
**149005-33-4 343978-79-0 376367-93-0**  
612519-47-8 **634907-40-7 635283-81-7**  
(org. **electroluminescent** device prodn. using wet coating methods with immiscible solvents for different layers and the devices)
- IT 50851-57-5  
(polyethylene dioxythiophene doped with; org. **electroluminescent** device prodn. using wet coating methods with immiscible solvents for different layers and the devices)
- IT 126213-51-2, Poly(3,4-ethylenedioxythiophene)  
(polystyrene sulfonate-doped; org. **electroluminescent** device prodn. using wet coating methods with immiscible solvents

for different layers and the devices)

L118 ANSWER 3 OF 4 HCA COPYRIGHT 2005 ACS on STN

139:283130 Phosphorescent dendrimers for use in **light-**

**emitting** devices. Lo, Shih-chun; Burn, Paul Leslie; Samuel, Ifor David William; Anthopoulos, Thomas Dimitrios (Isis Innovation Limited, UK; The University Court of the University of St. Andrews).

PCT Int. Appl. WO 2003079736 A1 20030925, 60 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2003-GB1132 20030318. PRIORITY: GB 2002-6356 20020318; GB 2002-20091 20020829; GB 2002-20092 20020829.

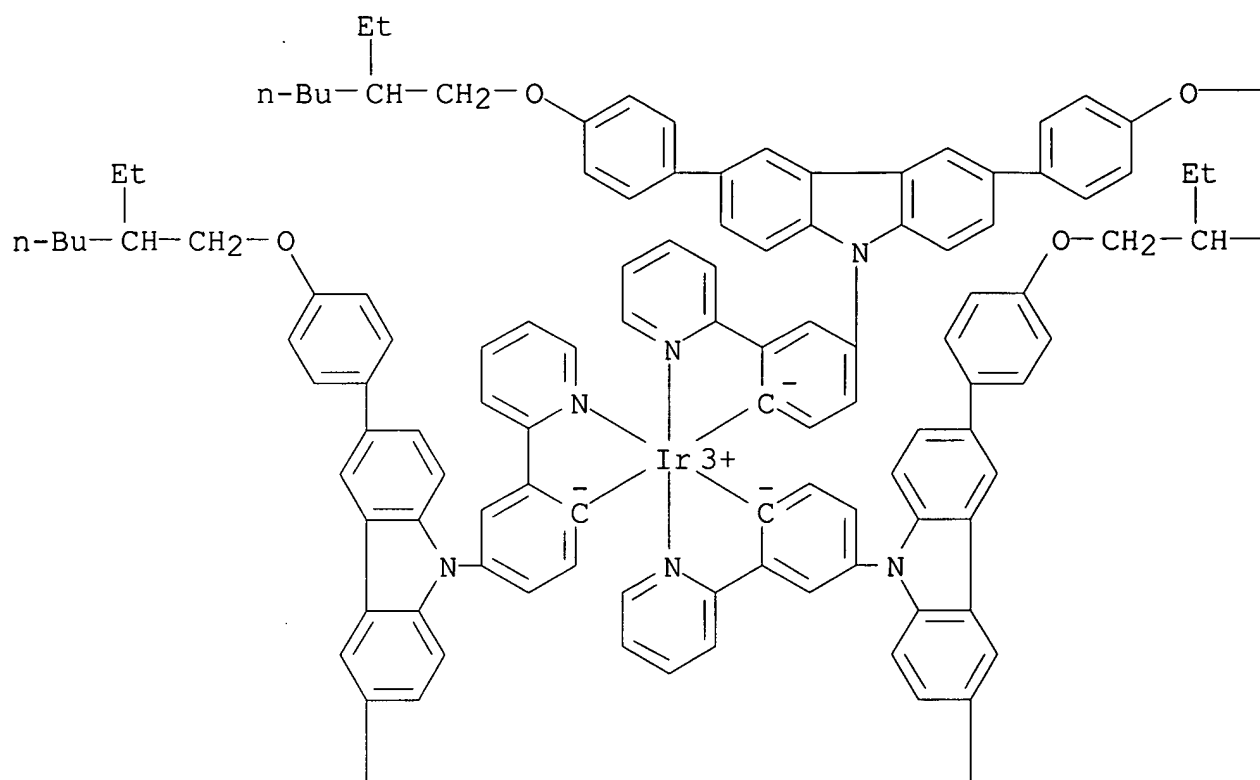
AB A **light emitting** device which comprises at least one layer that contains a phosphorescent organometallic dendrimer with a metal cation and  $\geq 2$  coordinating groups as part of its core and wherein at least 2 of said coordinating groups each have a dendron attached, at least one of which dendrons comprises at least one N atom which forms part of an arom. ring system or is directly bonded to at least 2 arom. groups.

IT **606932-48-3P 606932-53-0P**  
(phosphorescent dendrimers for use in **light-emitting** devices)

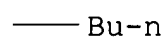
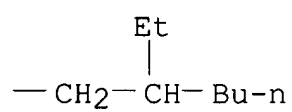
RN 606932-48-3 HCA

CN Iridium, tris[4-[3,6-bis[4-[(2-ethylhexyl)oxy]phenyl]-9H-carbazol-9-yl]-2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]-, (OC-6-22)-(9CI) (CA INDEX NAME)

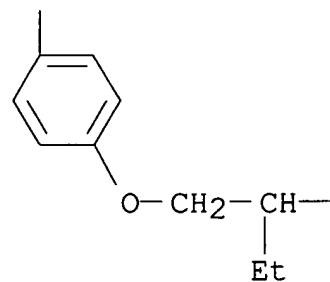
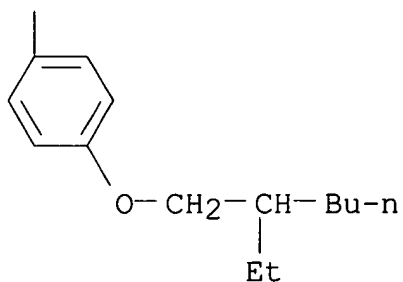
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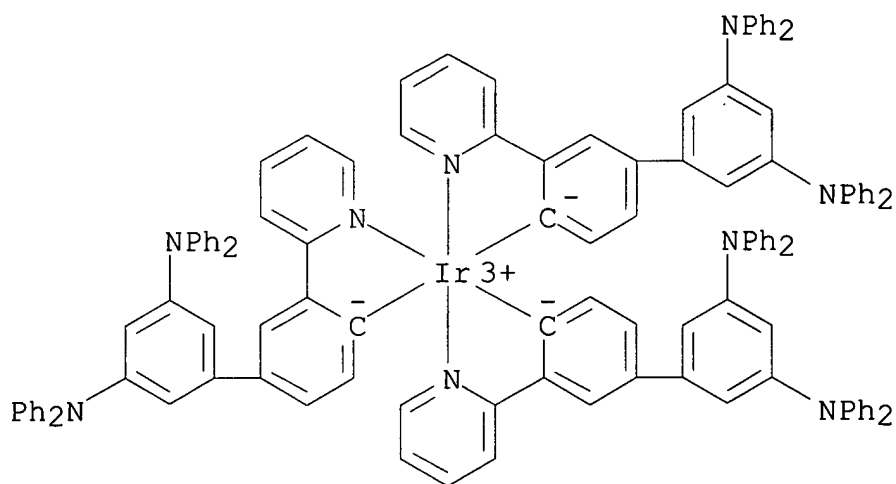


PAGE 2-B

— Bu-n

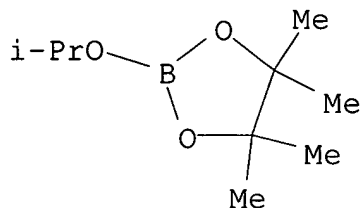
RN 606932-53-0 HCA

CN Iridium, tris[3',5'-bis(diphenylamino)-3-(2-pyridinyl-.kappa.N) [1,1'-biphenyl]-4-yl-.kappa.C]-, (OC-6-22)- (9CI) (CA INDEX NAME)

IT **61676-62-8**, 2-Isopropoxy-4,4,5,5-tetramethyl-1,3,2-dioxaborolane(phosphorescent dendrimers for use in **light-emitting** devices)

RN 61676-62-8 HCA

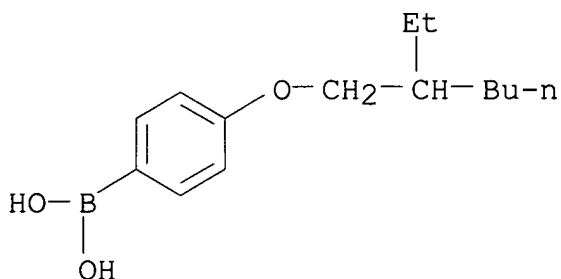
CN 1,3,2-Dioxaborolane, 4,4,5,5-tetramethyl-2-(1-methylethoxy)- (9CI)  
(CA INDEX NAME)



IT 452369-36-7P 453530-49-9P 606932-41-6P  
606932-42-7P 606932-44-9P 606932-52-9P  
(phosphorescent dendrimers for use in **light-emitting** devices)

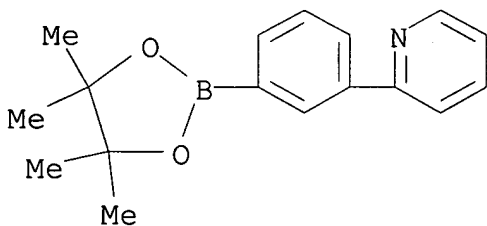
RN 452369-36-7 HCA

CN Boronic acid, [4-[(2-ethylhexyl)oxy]phenyl]- (9CI) (CA INDEX NAME)



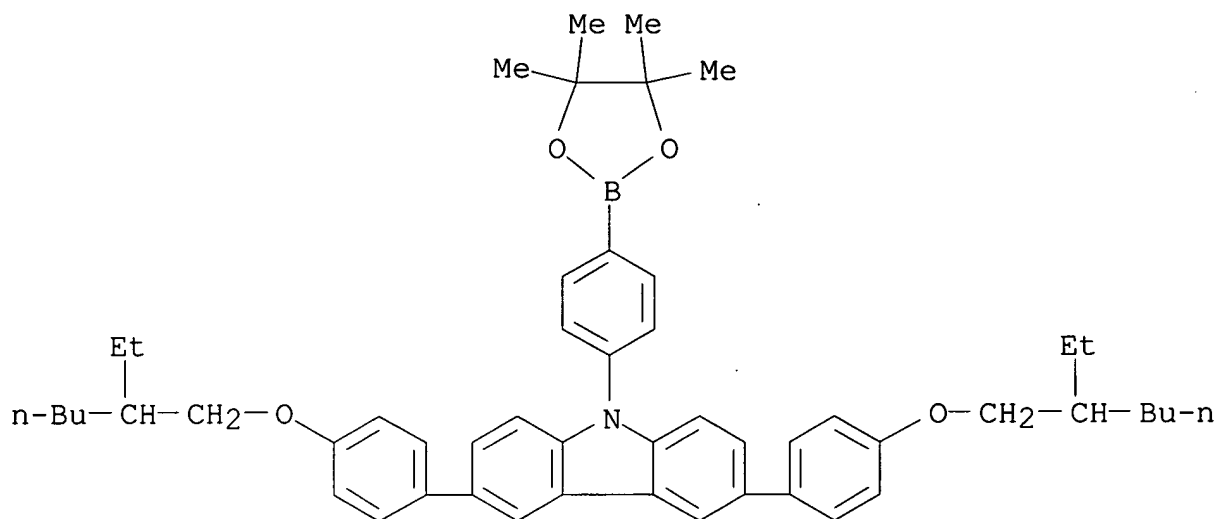
RN 453530-49-9 HCA

CN Pyridine, 2-[3-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl]-  
(9CI) (CA INDEX NAME)



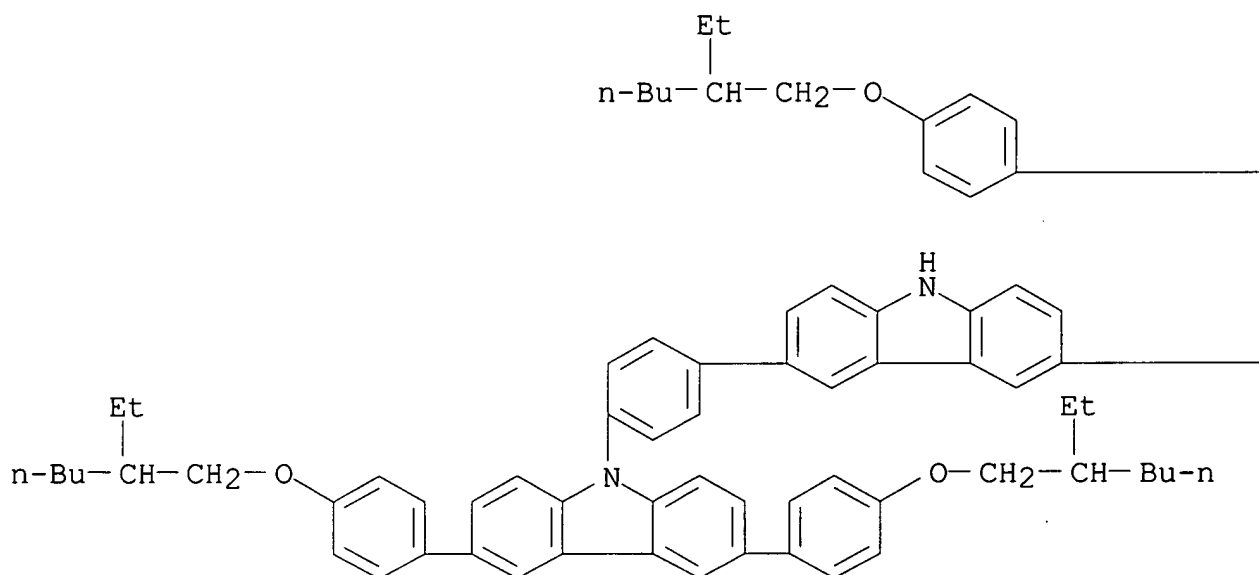
RN 606932-41-6 HCA

CN 9H-Carbazole, 3,6-bis[4-[(2-ethylhexyl)oxy]phenyl]-9-[4-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl]- (9CI) (CA INDEX NAME)

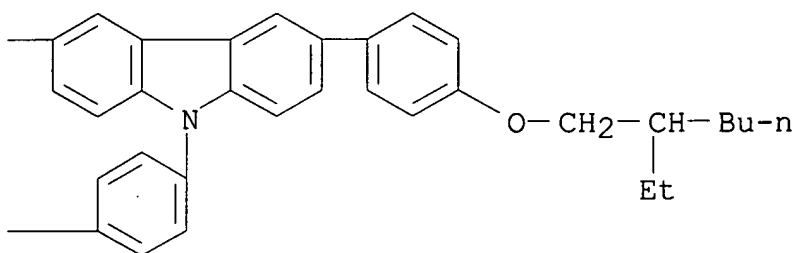


RN 606932-42-7 HCA  
 CN 9H-Carbazole, 3,6-bis[4-[3,6-bis[4-[(2-ethylhexyl)oxy]phenyl]-9H-carbazol-9-yl]phenyl]- (9CI) (CA INDEX NAME)

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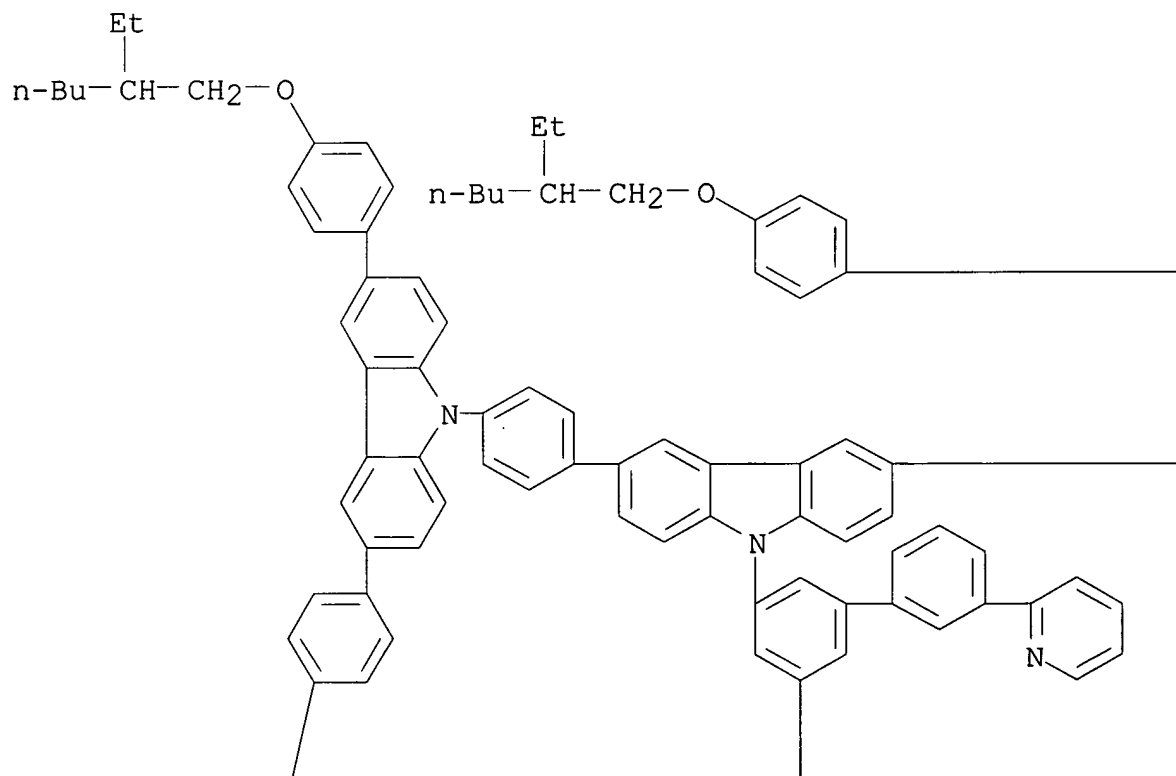


PAGE 1-B



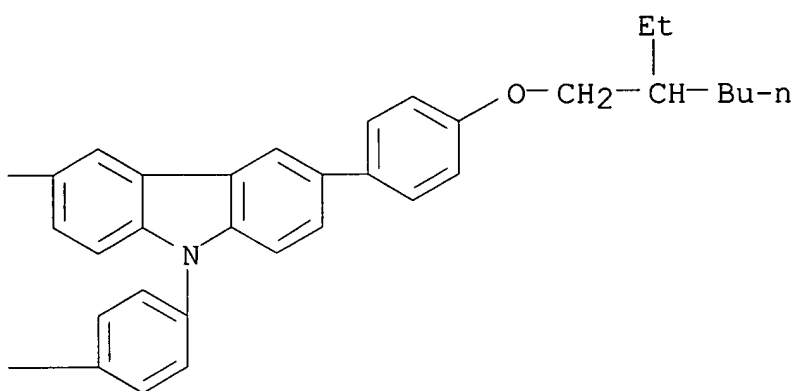
RN 606932-44-9 HCA  
 CN 9H-Carbazole, 9,9'-[3'-(2-pyridinyl)[1,1'-biphenyl]-3,5-diyl]bis[3,6-bis[4-[3,6-bis[4-[(2-ethylhexyl)oxy]phenyl]-9H-carbazol-9-yl]phenyl]-(9CI) (CA INDEX NAME)

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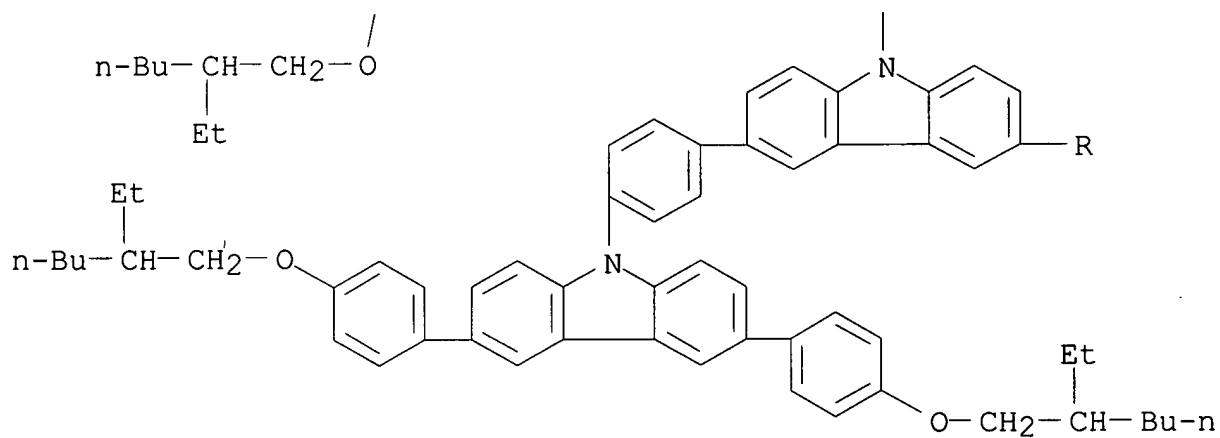




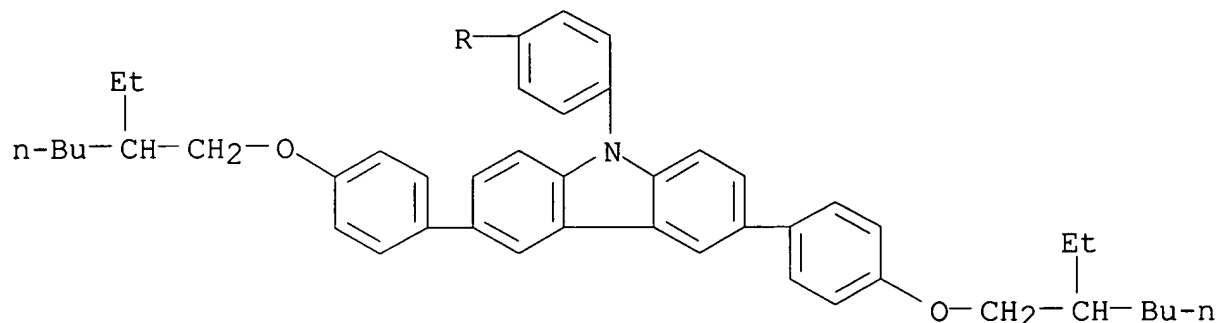
PAGE 1-B



PAGE 2-A

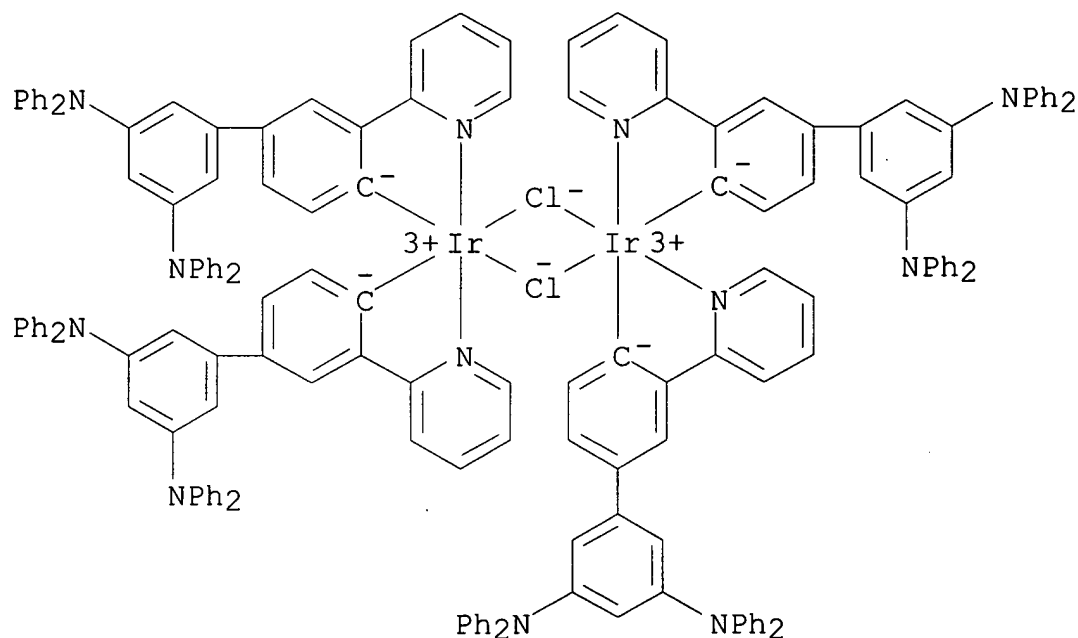


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RN 606932-52-9 HCA

CN Iridium, tetrakis[3',5'-bis(diphenylamino)-3-(2-pyridinyl-.kappa.N)[1,1'-biphenyl]-4-yl-.kappa.C]di-.mu.-chlorodi-, stereoisomer (9CI) (CA INDEX NAME)



IC ICM H05B033-14

ICS C09K011-06; H01L051-20; C07F015-00; H01L051-30

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 29

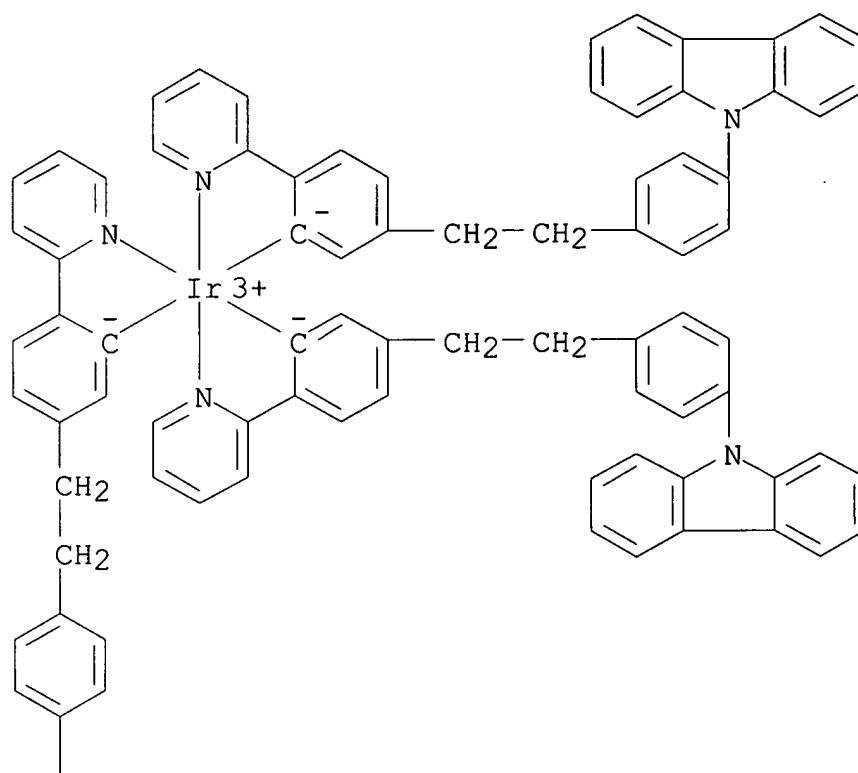
ST phosphorescent organometal dendrimer **light emitting** device

IT **Electroluminescent** devices

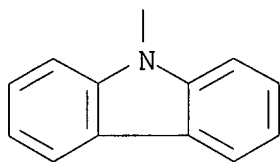
- Phosphorescent substances  
(phosphorescent dendrimers for use in **light-emitting** devices)
- IT Organometallic compounds  
(phosphorescent dendrimers for use in **light-emitting** devices)
- IT Dendritic polymers  
(phosphorescent dendrimers for use in **light-emitting** devices)
- IT **606932-48-3P 606932-53-0P 606976-70-9P**  
(phosphorescent dendrimers for use in **light-emitting** devices)
- IT 86-74-8, Carbazole 106-37-6, 1,4-Dibromobenzene 106-41-2,  
4-Bromophenol 121-43-7, Trimethylborate 128-08-5, NBS  
589-87-7, 1-Bromo-4-iodobenzene 624-28-2, 2,5-Dibromopyridine  
4373-60-8 6825-20-3, 3,6-Dibromocarbazole 13569-57-8  
18908-66-2, 2-Ethylhexylbromide **61676-62-8**,  
2-Isopropoxy-4,4,5,5-tetramethyl-1,3,2-dioxaborolane 63996-36-1  
606932-38-1  
(phosphorescent dendrimers for use in **light-emitting** devices)
- IT 626-39-1P, 1,3,5-Tribromobenzene 164352-24-3P **452369-36-7P**  
453530-47-7P **453530-49-9P** 453530-50-2P 606932-37-0P  
606932-39-2P **606932-41-6P 606932-42-7P**  
**606932-44-9P** 606932-45-0P 606932-46-1P 606932-47-2P  
606932-49-4P 606932-51-8P **606932-52-9P**  
(phosphorescent dendrimers for use in **light-emitting** devices)
- IT 606932-50-7P  
(phosphorescent dendrimers for use in **light-emitting** devices)
- L118 ANSWER 4 OF 4 HCA COPYRIGHT 2005 ACS on STN
- 139:188402 Organic **electroluminescent** devices/displays and  
dendritic complex compounds therefor. Tokito, Seiji; Tsuzuki,  
Toshimitsu; Shirasawa, Nobuhiko; Suzuki, Toshiyasu (Japan  
Broadcasting Corp., Japan). Jpn. Kokai Tokkyo Koho JP 2003231692 A2  
20030819, 16 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP  
2002-351662 20021203. PRIORITY: JP 2001-370628 20011204.
- AB Compds. including **light-emitting** central cores  
(and hole- or electron-transporting branches), and (full-color)  
large org. LED including the same in emission layers are sep.  
claimed. The said cores may have transition (or rare-earth) metal  
complexes. The LED show long life and high luminescent efficiency.
- IT **578715-38-5P 578715-39-6P 578715-41-0P**  
**578715-43-2P**  
(emission layers; org. **electroluminescent**  
devices/displays and long-life emission materials therefor)

RN 578715-38-5 HCA  
 CN Iridium, tris[5-[2-[4-(9H-carbazol-9-yl)phenyl]ethyl]-2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]-, (OC-6-22)-(9CI) (CA INDEX NAME)

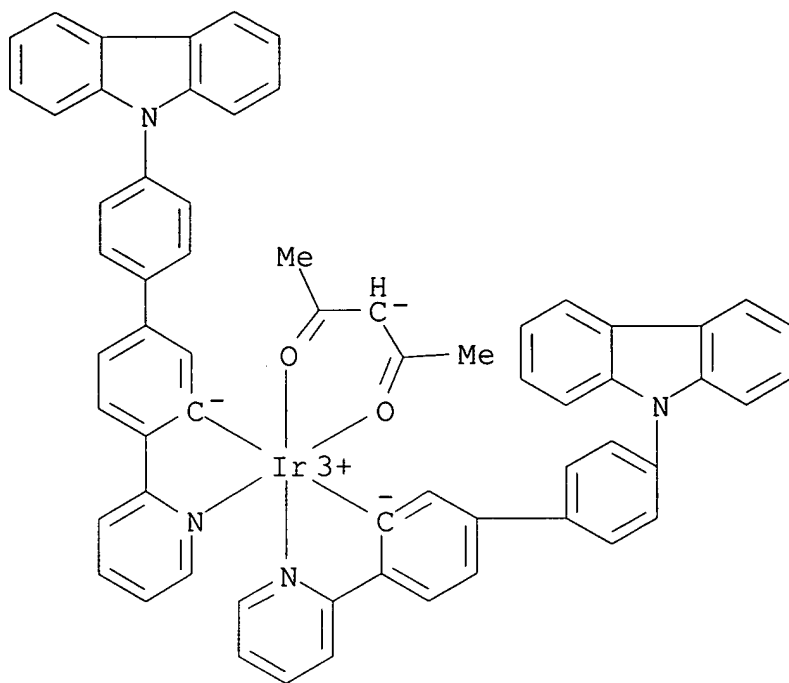
PAGE 1-A



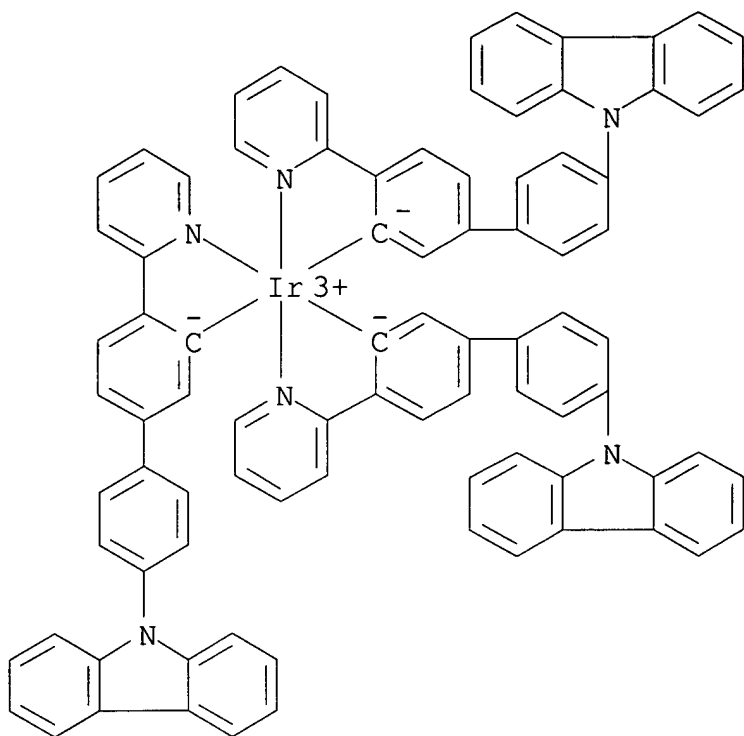
PAGE 2-A



RN 578715-39-6 HCA  
 CN Iridium, bis[4'-(9H-carbazol-9-yl)-4-(2-pyridinyl-.kappa.N)[1,1'-biphenyl]-3-yl-.kappa.C](2,4-pentanedionato-.kappa.O,.kappa.O')-(9CI) (CA INDEX NAME)



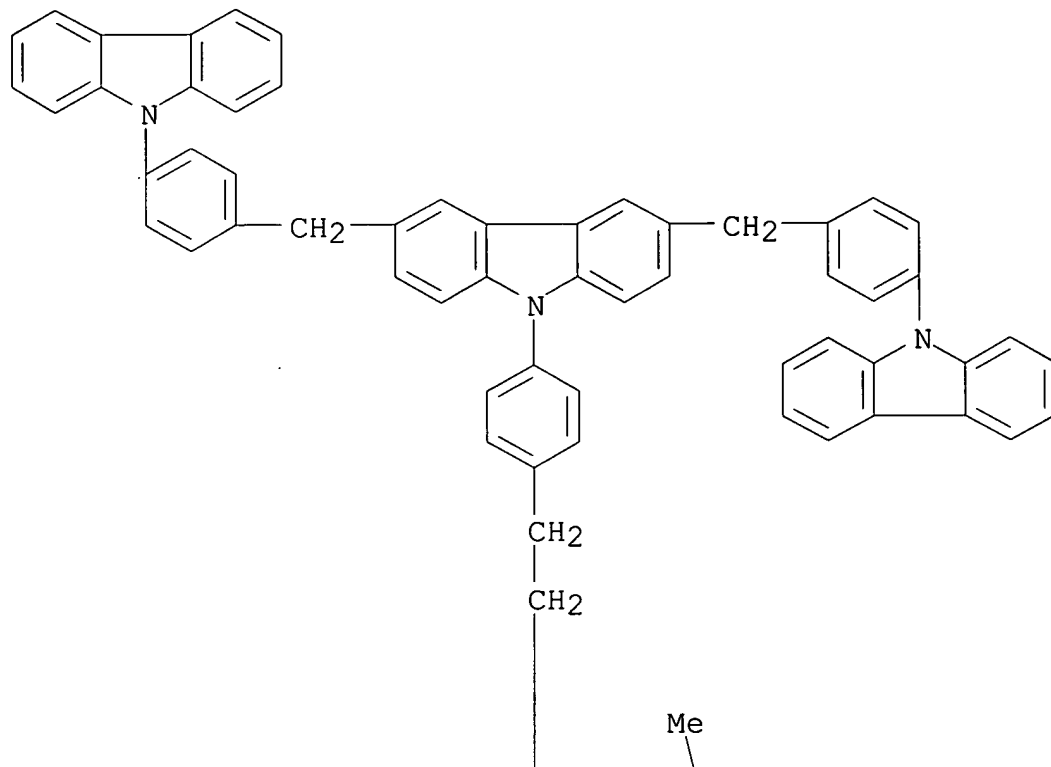
RN 578715-41-0 HCA  
 CN Iridium, tris[4'-(9H-carbazol-9-yl)-4-(2-pyridinyl-.kappa.N)[1,1'-biphenyl]-3-yl-.kappa.C]-, (OC-6-22)- (9CI) (CA INDEX NAME)



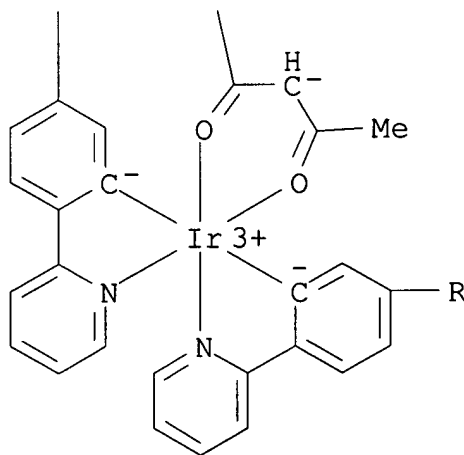
RN 578715-43-2 HCA

CN Iridium, bis[5-[2-[4-[3,6-bis[[4-(9H-carbazol-9-yl)phenyl]methyl]-9H-carbazol-9-yl]phenyl]ethyl]-2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C] (2,4-pentanedionato-.kappa.O,.kappa.O')- (9CI) (CA INDEX NAME)

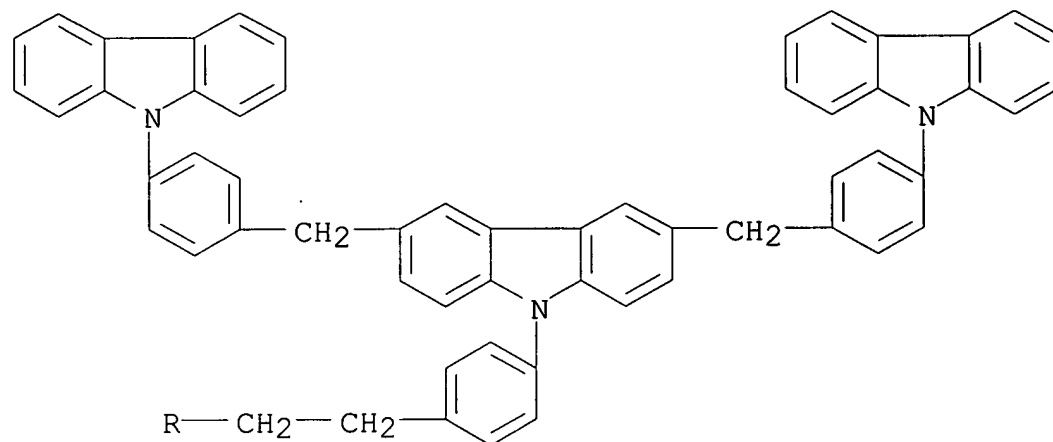
PAGE 1-A



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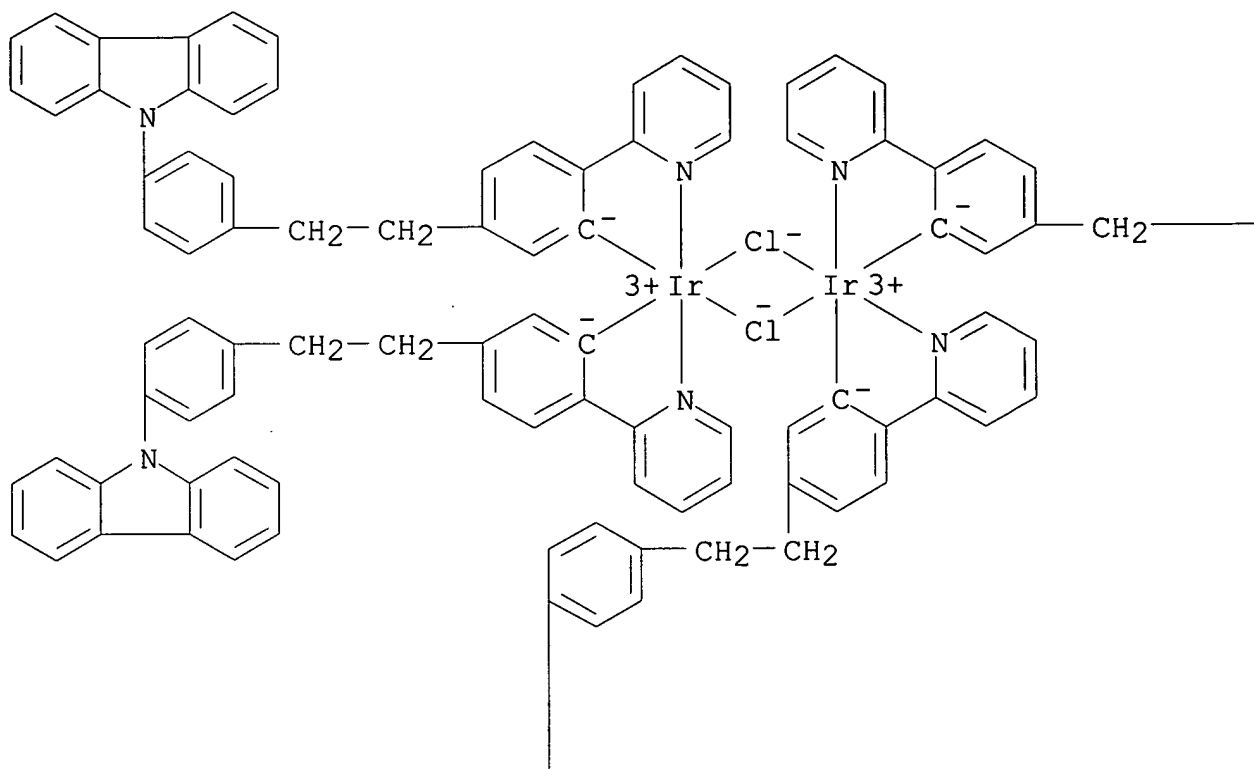
PAGE 3-A



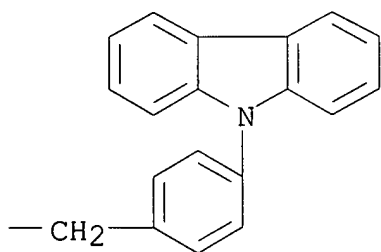
IT **578715-44-3P**  
 (intermediates; del borg. **electroluminescent**  
 devices/displays and long-life emission materials therefor)  
 RN 578715-44-3 HCA  
 CN Iridium, tetrakis[5-[2-[4-(9H-carbazol-9-yl)phenyl]ethyl]-2-(2-  
 pyridinyl-.kappa.N)phenyl-.kappa.C]di-.mu.-chlorodi- (9CI) (CA  
 INDEX NAME)



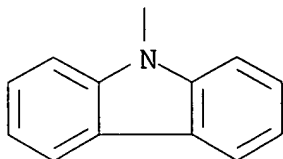
PAGE 1-A



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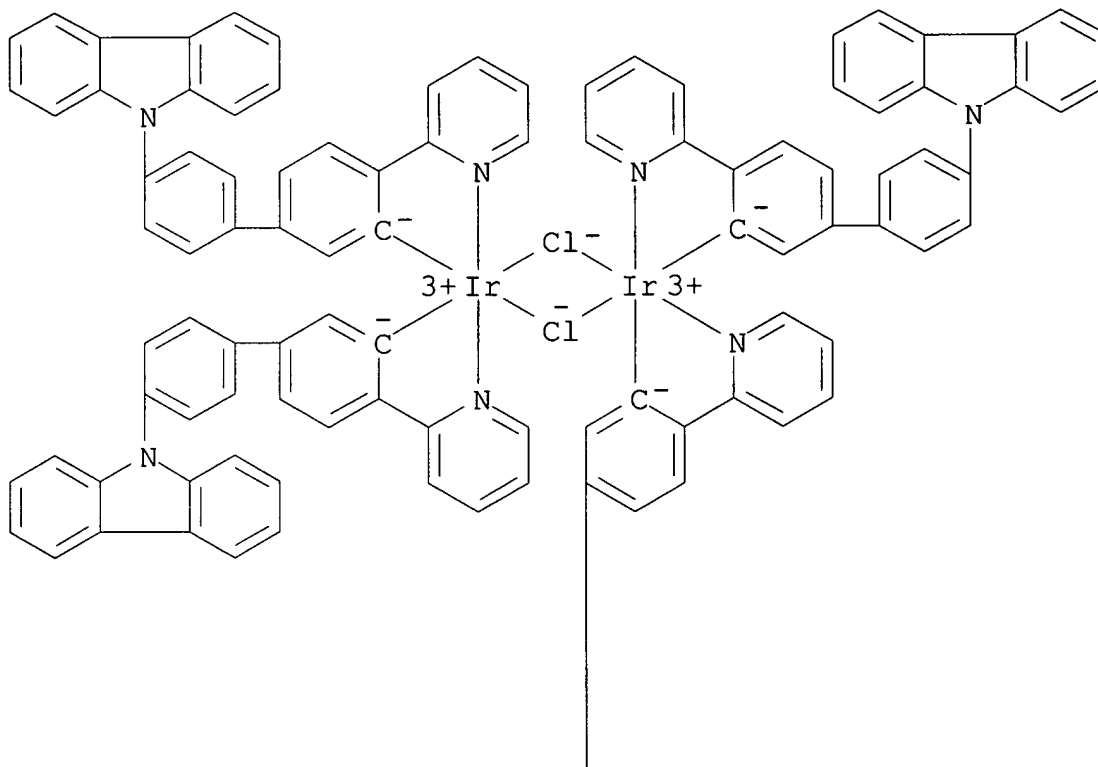
IT 578715-46-5P

(intermediates; reorg. **electroluminescent**  
 devices/displays and long-life emission materials therefor)

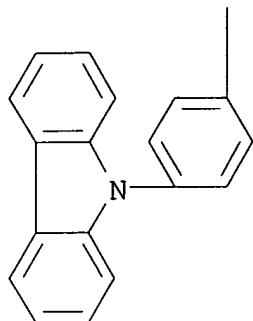
RN 578715-46-5 HCA

CN Iridium, tetrakis[4'-(9H-carbazol-9-yl)-4-(2-pyridinyl-  
 .kappa.N) [1,1'-biphenyl]-3-yl-.kappa.C]di-.mu.-chlorodi- (9CI) (CA  
 INDEX NAME)

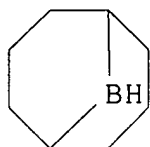
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IT 280-64-8, 9-BBN  
(org. **electroluminescent** devices/displays and long-life  
emission materials therefor)  
RN 280-64-8 HCA  
CN 9-Borabicyclo[3.3.1]nonane (8CI, 9CI) (CA INDEX NAME)



IC ICM C07F015-00  
ICS C09K011-06; H05B033-14; H05B033-22  
CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and  
Other Reprographic Processes)  
Section cross-reference(s): 29, 73  
ST dendritic **iridium complex** org  
**electroluminescent** display; charge transporting branch  
**iridium complex** LED  
IT Rare earth complexes  
(dendritic, **electroluminescent**; org.  
**electroluminescent** devices/displays and long-life  
emission materials therefor)  
IT Transition metal complexes  
(dendritic, **electroluminescent**; org.  
**electroluminescent** devices/displays and long-life  
emission materials therefor)  
IT **Electroluminescent** devices  
(displays; org. **electroluminescent** devices/displays and  
long-life emission materials therefor)  
IT Luminescent substances  
(**electroluminescent**, phosphorescent; org.)

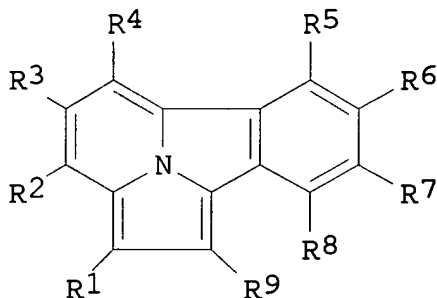
- electroluminescent** devices/displays and long-life emission materials therefor)
- IT **Luminescent** screens  
(**electroluminescent**; org.  
**electroluminescent** devices/displays and long-life emission materials therefor)
- IT **Electroluminescent** devices  
(org. **electroluminescent** devices/displays and long-life emission materials therefor)
- IT **578715-38-5P 578715-39-6P 578715-41-0P  
578715-43-2P**  
(emission layers; org. **electroluminescent**  
devices/displays and long-life emission materials therefor)
- IT **578715-44-3P**  
(intermediates; del borg. **electroluminescent**  
devices/displays and long-life emission materials therefor)
- IT **578715-46-5P**  
(intermediates; reorg. **electroluminescent**  
devices/displays and long-life emission materials therefor)
- IT 578710-59-5P 578710-61-9P  
(ligands; org. **electroluminescent** devices/displays and long-life emission materials therefor)
- IT 52913-19-6P 578710-60-8P  
(org. **electroluminescent** devices/displays and long-life emission materials therefor)
- IT 86-74-8, Carbazole 92-66-0, 4-Bromobiphenyl **280-64-8**,  
9-BBN 1461-22-9, Tributyltin chloride 2039-82-9, 4-Bromostyrene  
15702-05-3, Sodium iridium chloride (Na<sub>3</sub>IrCl<sub>6</sub>) 57102-42-8,  
9-(4-Bromophenyl)carbazole 63996-36-1, 2-(4-Bromophenyl)pyridine  
(org. **electroluminescent** devices/displays and long-life emission materials therefor)

=> d 156 1-4 cbib abs hitstr hitind

L56 ANSWER 1 OF 4 HCA COPYRIGHT 2005 ACS on STN

139:299056 Organic **electroluminescent** device with layer containing isoindole compound. Shiotani, Takeshi; Mitsumori, Mitsuyuki; Sato, Yoshiharu (Mitsubishi Chemical Corp., Japan). Jpn. Kokai Tokkyo Koho JP 2003297580 A2 20031017, 40 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2002-99125 20020401.

GI



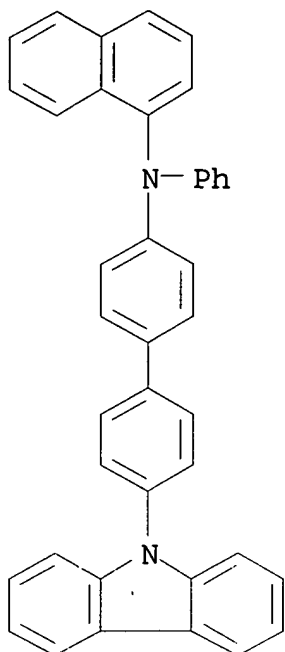
AB In the org. **electroluminescent** device consisting of a substrate having thereon an anode, a cathode, and in between, a luminescent layer, the device has a layer contg. compds. having isoindole backbone represented by I [R1-R9 = H, halo, alkyl, aralkyl, alkenyl, CN, NO2, amino, acyl, acyloxycarbonyl, CO2H, alkoxy, alkylamino, arylamino, haloalkyl, OH, (substituted) arom. hydrocarbon ring or arom. heterocyclic ring; the adjacent groups may be bonded to each other and form condensed ring in the isoindole backbone]. The isoindole backbone-contg. compds. may be oligomeric. I can be used as a charge-transporting layer material, a luminescent layer host material, a luminescent layer dopant, etc. The org. **electroluminescent** device is useful for flat panel displays, surface-emitting light sources for photocopying machines and LCD, etc.

IT 212385-49-4

(charge-transporting compd. in org. **electroluminescent** layer; org. **EL** device involving layer contg. isoindole compd. with good blue-emitting property for FPD and light sources)

RN 212385-49-4 HCA

CN 1-Naphthalenamine, N-[4'-(9H-carbazol-9-yl)[1,1'-biphenyl]-4-yl]-N-phenyl- (9CI) (CA INDEX NAME)



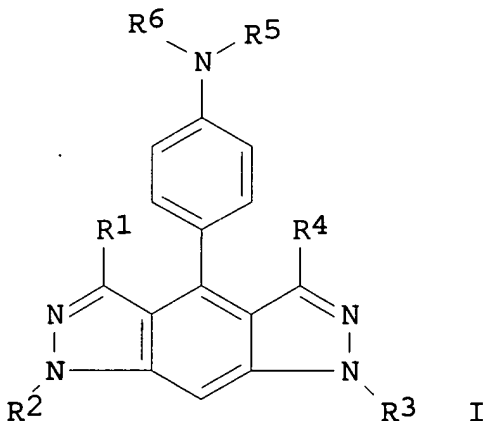
- IC ICM H05B033-14  
ICS C07D487-16; C09K011-06; H05B033-22
- CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
- ST blue emitting phosphor org **electroluminescent** device;  
isoindole compd org **electroluminescent** device
- IT Phosphors  
(blue-emitting; org. **EL** device involving layer contg.  
isoindole compd. with good blue-emitting property for FPD and  
light sources)
- IT **Electroluminescent** devices  
(org. **EL** device involving layer contg. isoindole compd.  
with good blue-emitting property for FPD and light sources)
- IT **212385-49-4**  
(charge-transporting compd. in org. **electroluminescent**  
layer; org. **EL** device involving layer contg. isoindole  
compd. with good blue-emitting property for FPD and light  
sources)
- IT 105706-51-2P  
(charge-transporting compd. in org. **electroluminescent**  
layer; org. **EL** device involving layer contg. isoindole  
compd. with good blue-emitting property for FPD and light  
sources)
- IT 105706-55-6P  
(dope colorant for org. **luminescent** layer  
layer; org. **EL** device involving layer contg.  
isoindole compd. with good blue-emitting property for FPD and

- light sources)
- IT 2085-33-8, 8-Hydroxyquinoline aluminum 58328-31-7  
(electron transporting layer; org. **EL** device involving layer contg. isoindole compd. with good blue-emitting property for FPD and light sources)
- IT 157077-25-3  
(hole blocking layer material; org. **EL** device involving layer contg. isoindole compd. with good blue-emitting property for FPD and light sources)
- IT 123847-85-8  
(hole-transporting layer; org. **EL** device involving layer contg. isoindole compd. with good blue-emitting property for FPD and light sources)

L56 ANSWER 2 OF 4 HCA COPYRIGHT 2005 ACS on STN

139:299011 Organic **light-emitting** diode. Tao, Yu-Tai; Ko, Chung-Wen; Chuen, Chang-Hao; Peng, Jing-Wen (Academia Sinica, Taiwan). U.S. Pat. Appl. Publ. US 2003186082 A1 20031002, 11 pp. (English). CODEN: USXXCO. APPLICATION: US 2002-294848 20021114. PRIORITY: US 2001-2001/PV335819 20011114.

GI

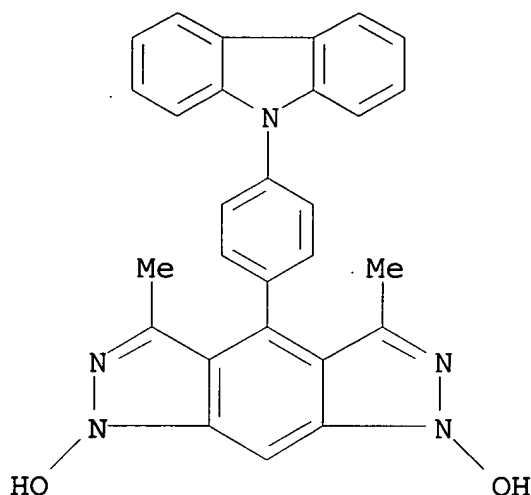


- AB A dipyrzolo-pyridine compd. preferably as a **light-emitting** material for org. light diode is described comprising a unit according to I, where each of R1, R2, R3, and R4 independently, is H, alkyl, alkenyl, cycloalkyl, aryl, or heteroaryl; and each of R5 and R6 independently, is aryl or heteroaryl, or R5 and R6, together with the attached N atom, are heteroaryl. An **electroluminescent** device comprising the dipyrzolo-pyridine compd. is also described.
- IT 607741-48-0P

(**light-emitting** layer; org. **light-emitting** diode using dipyrazol-pyridine compd.)

RN 607741-48-0 HCA

CN 9H-Carbazole, 9-[4-(1,7-dihydro-1,7-dihydroxy-3,5-dimethylbenzo[1,2-c:5,4-c']dipyrazol-4-yl)phenyl]- (9CI) (CA INDEX NAME)



IC ICM H05B033-14

ICS C07D471-14

INCL 428690000; 428917000; 313504000; 313506000; 257102000; 257103000; 546082000; 548359500

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 76

ST org **light emitting** diode pyrazol pyridine compd

IT **Luminescent** substances

(**electroluminescent**; org. **light-emitting** diode using dipyrazol-pyridine compd.)

IT **Electroluminescent** devices

(org. **light-emitting** diode using dipyrazol-pyridine compd.)

IT **Light**

(**white**; **white light** org.

**light-emitting** diode using dipyrazol-pyridine compd.)

IT 51325-91-8, 4-(Dicyanomethylene)-2-methyl-6-(4-dimethylaminostyryl)-4H-pyran

(DCM, **light-emitting** layer; org.

**light-emitting** diode using dipyrazol-pyridine compd.)

IT 37271-44-6

(cathode; org. **light-emitting** diode using



- dipyrazol-pyridine compd.)
- IT 50926-11-9, Indium tin oxide  
(electrode; org. **light-emitting** diode using  
dipyrazol-pyridine compd.)
- IT 123847-85-8, NPB  
(hole transport; org. **light-emitting** diode  
using dipyrazol-pyridine compd.)
- IT 192198-85-9, TPBI  
(**light emitting** layer; org. **light-**  
**emitting** diode using dipyrazol-pyridine compd.)
- IT 607741-45-7P 607741-46-8P 607741-47-9P **607741-48-0P**  
(**light-emitting** layer; org. **light-**  
**emitting** diode using dipyrazol-pyridine compd.)
- IT 2085-33-8, AlQ3  
(org. **light-emitting** diode using  
dipyrazol-pyridine compd.)
- IT 90-30-2, 1-Naphthylphenylamine 607741-49-1  
(org. **light-emitting** diode using  
dipyrazol-pyridine compd.)

L56 ANSWER 3 OF 4 HCA COPYRIGHT 2005 ACS on STN

137:147552 Polymeric fluorescent substances for polymer **light emitting** devices and production method thereof. Noguchi, Takanobu; Tsubata, Yoshiaki; Doi, Shuji (Sumitomo Chemical Company, Limited, Japan). Eur. Pat. Appl. EP 1229063 A2 **20020807**, 32 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR. (English). CODEN: EPXXDW. APPLICATION: EP 2002-250742 20020204. PRIORITY: JP 2001-28001 20010205; JP 2001-71776 20010314.

AB Provided is a method of producing a polymeric fluorescent substance wherein one or more monomers X1Ar1X2 (wherein Ar1 represents a divalent group selected from arylene groups, divalent heterocyclic compd. groups, and divalent or trivalent hetero atom-bonded arylene or divalent heterocyclic compd. groups, and X1 and X2 represent leaving groups) are polymd. in the presence of a zerovalent nickel complex. By using the polymeric fluorescent substance, a high performance polymer LED can easily be obtained. Thus, 0.82 g 2,7-dibromo-9,9-dioctylfluorene was polymd. in the presence of 0.55 g 2,2'-bipyridyl ligand and 0.96 g bis(1,5-cyclooctadiene) nickel(0) polymn. catalyst in THF to give a polymer with wt. av. mol. wt. 5.4 .times. 105, no. av. mol. wt. 1.7 .times. 105, fluorescent peak at 428 nm, and relative fluorescent intensity 4.0, which was used to prep. a **light emitting** device.

IT **444796-10-5P**  
(prepn. of fluorescent polymers for polymer **light emitting** devices)

RN 444796-10-5 HCA

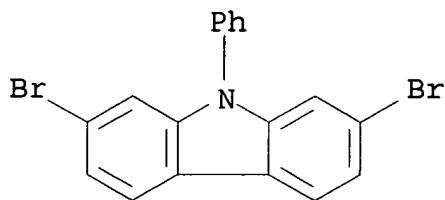
CN 9H-Carbazole, 2,7-dibromo-9-phenyl-, polymer with

2,7-dibromo-9,9-dioctyl-9H-fluorene (9CI) (CA INDEX NAME)

CM 1

CRN 444796-09-2

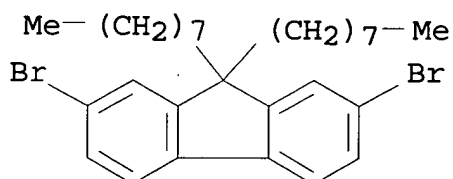
CMF C18 H11 Br2 N



CM 2

CRN 198964-46-4

CMF C29 H40 Br2



- IC ICM C08G061-02  
ICS C08G061-10; C09K011-06
- CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
Section cross-reference(s): 35, 38, 76
- ST polymeric fluorescent substance polymer **light emitting** device; fluorene fluorescent polymer prepn  
zerovalent nickel complex catalyst
- IT **Electroluminescent** devices  
(displays; prepn. of fluorescent polymers for polymer **light emitting** devices)
- IT Luminescent screens  
(**electroluminescent**; prepn. of fluorescent polymers for polymer **light emitting** devices)
- IT Polymerization catalysts  
(metallocene, nickel; prepn. of fluorescent polymers for polymer **light emitting** devices)
- IT Polymerization catalysts  
(nickel; prepn. of fluorescent polymers for polymer **light emitting** devices)

- IT Polyamines  
(poly(arylenealkenylene)-; prepn. of fluorescent polymers for  
polymer **light emitting** devices)
- IT Poly(arylenealkenylenes)  
(polyamine-; prepn. of fluorescent polymers for polymer  
**light emitting** devices)
- IT Polyamines  
(polyarylenes; prepn. of fluorescent polymers for polymer  
**light emitting** devices)
- IT Fluorescent substances  
(prepn. of fluorescent polymers for **light**  
**emitting** devices)
- IT **Electroluminescent** devices  
Light sources  
**Liquid crystal** displays  
(prepn. of fluorescent polymers for polymer **light**  
**emitting** devices)
- IT Poly(arylenealkenylenes)  
(prepn. of fluorescent polymers for polymer **light**  
**emitting** devices)
- IT Aromatic hydrocarbons, uses  
Ethers, uses  
(solvents; prepn. of fluorescent polymers for **light**  
**emitting** devices)
- IT 1295-35-8, Bis(1,5-cyclooctadiene) nickel(0)  
(polymn. catalyst; prepn. of fluorescent polymers for polymer  
**light emitting** devices)
- IT 444795-96-4P 444795-99-7P 444796-01-4P 444796-03-6P  
444796-05-8P 444796-07-0P **444796-10-5P** 444796-13-8P  
444796-14-9P 444796-18-3P 444796-21-8P 444796-24-1P  
444796-27-4P 444796-29-6P 444796-30-9P 444796-31-0P  
444796-33-2P 444796-35-4P 444890-57-7P  
(prepn. of fluorescent polymers for polymer **light**  
**emitting** devices)
- IT 195456-48-5P, Poly(9,9-dioctyl-9H-fluorene-2,7-diyl) 286438-50-4P  
(prepn. of fluorescent polymers for polymer **light**  
**emitting** devices)
- IT 108-88-3, Toluene, uses  
(solvent; prepn. of fluorescent polymers for **light**  
**emitting** devices)
- IT 109-99-9, Tetrahydrofuran, uses 123-91-1, 1,4-Dioxane, uses  
(solvent; prepn. of fluorescent polymers for polymer  
**light emitting** devices)

L56 ANSWER 4 OF 4 HCA COPYRIGHT 2005 ACS on STN

136:29262 Organic **electroluminescent** display device and  
chemical compounds for **liquid crystals**. Kido,  
Junji; Nakada, Hitoshi; Tohma, Teruo; Murayama, Ryuji; Yuki,

Toshinao (Tohoku Pioneer Corporation, Japan). U.S. Pat. Appl. Publ.  
US 2001048982 A1 20011206, 22 pp. (English). CODEN:  
USXXCO. APPLICATION: US 2001-844151 20010427. PRIORITY: JP  
2000-128766 20000428.

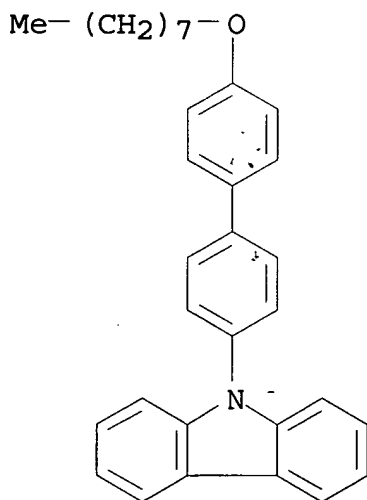
AB The new org. **electroluminescent** display device has a carrier-transporting layer and/or an org. **luminous** layer composed of a nematic **liq. crystal** or a **liq. crystal** dispersing a carrier-transporting low-mol. therein. When the org. **luminous** layer is to be bestowed with faculty as a **liq. crystal**, it is made of a nematic **liq. crystal**. Both the carrier-transporting layer and the org. **luminous** layer may be bestowed with faculty as a **liq. crystal**. Since the **liq. crystal** is incorporated in the carrier-transporting layer and/or the org. **luminous** layer, the display device can be driven as a **liq. crystal** display device in a dark place by charging with a voltage lower than a **light emission** initiating potential. Of course, it is driven as an **electroluminescent** display device when it is charged with a voltage higher than the **light emission** initiating potential. Use of an **electroluminescent liq. crystal** as an org. **luminous** layer enables omission of a carrier-transporting layer.

IT 378223-58-6P 378223-59-7P

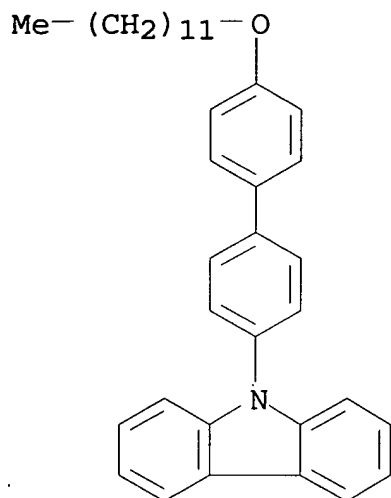
(prepn. of carrier-transporting **liq crystal**  
for org. **electroluminescent** display device)

RN 378223-58-6 HCA

CN 9H-Carbazole, 9-[4'-(octyloxy)[1,1'-biphenyl]-4-yl]- (9CI) (CA  
INDEX NAME)



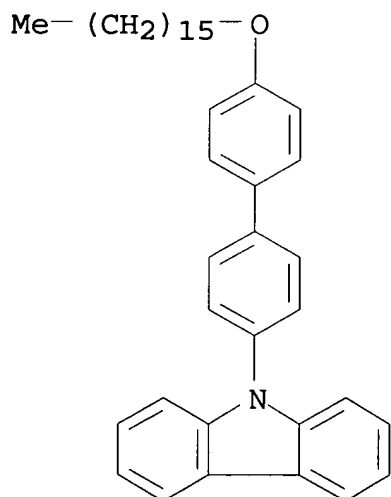
RN 378223-59-7 HCA

CN 9H-Carbazole, 9-[4'-(dodecyloxy)[1,1'-biphenyl]-4-yl]- (9CI) (CA  
INDEX NAME)

IT 378223-63-3P

(prepn. of org. electroluminescent liq.  
**crystals** for display device)

RN 378223-63-3 HCA

CN 9H-Carbazole, 9-[4'-(hexadecyloxy)[1,1'-biphenyl]-4-yl]- (9CI) (CA  
INDEX NAME)

IC ICM C09K019-38

ICS C09K019-32

INCL 428001100

- CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
Section cross-reference(s): 38, 75
- ST org **electroluminescent** display nematic liq  
**crystal**
- IT **Liquid crystals**  
(nematic; org. chem. compds. and liq. **crystals**  
for)
- IT **Electroluminescent** devices  
(org. chem. compds. and liq. **crystals** for)
- IT **Liquid crystal** displays  
(org. **electroluminescent** compds. and chem. compds. for)
- IT 25067-59-8, Polyvinylcarbazole 38215-36-0 50851-57-5  
65181-78-4 126213-51-2, PEDOT  
(org. **electroluminescent** display device and chem.  
compds. for liq. **crystals**)
- IT 138184-36-8  
(org. luminous substance; org.  
**electroluminescent** display device and chem. compds. for  
liq. **crystals**)
- IT 195375-07-6P  
(prepn. of bipolar carrier-transporting liq  
**crystal** for org. **electroluminescent** display  
device)
- IT 15231-91-1, 6-Bromo-2-naphthol 51554-93-9 61676-62-8  
(prepn. of bipolar carrier-transporting liq  
**crystal** for org. **electroluminescent** display  
device)
- IT 212079-31-7P 378223-65-5P  
(prepn. of bipolar carrier-transporting liq  
**crystal** for org. **electroluminescent** display  
device)
- IT 378223-58-6P 378223-59-7P 378223-64-4P  
(prepn. of carrier-transporting liq **crystal**  
for org. **electroluminescent** display device)
- IT 86-74-8, 9H-Carbazole 531-91-9 540-38-5, p-Iodophenol 629-27-6  
4292-19-7, 1-Iodo dodecane 29558-77-8  
(prepn. of carrier-transporting liq **crystal**  
for org. **electroluminescent** display device)
- IT 58743-82-1P 116223-57-5P 138567-33-6P  
(prepn. of carrier-transporting liq **crystal**  
for org. **electroluminescent** display device)
- IT 18908-66-2, 3-Bromomethyl heptane 19692-45-6  
(prepn. of org. **electroluminescent** compd. for  
liq. **crystal** display device)
- IT 150-76-5P 146370-51-6P 146370-52-7P  
(prepn. of org. **electroluminescent** compd. for  
liq. **crystal** display device)

IT 378223-62-2P 378223-63-3P  
(prepn. of org. **electroluminescent liq.**  
**crystals** for display device)

IT 90-33-5 143-15-7, 1-Bromo dodecane 623-00-7, 4-Bromo  
benzonitrile 2439-55-6, N-Methyl octadecylamine 6068-72-0,  
4-Cyanobenzoyl chloride 26628-22-8, Sodium azide  
(prepn. of org. **electroluminescent liq.**  
**crystals** for display device)

IT 85389-89-5P 274677-41-7P 378223-60-0P 378223-61-1P  
(prepn. of org. **electroluminescent liq.**  
**crystals** for display device)

=> d 157 1-17 cbib abs hitstr hitind

L57 ANSWER 1 OF 17 HCA COPYRIGHT 2005 ACS on STN  
141:96344 Organic **electroluminescent** device for displays and  
illumination source and its production method. Kita, Hiroshi;  
Yamada, Taketoshi; Suzurizato, Yoshiyuki; Ueda, Noriko (Konica  
Minolta Holdings Inc., Japan). Jpn. Kokai Tokkyo Koho JP 2004185967  
A2 20040702, 65 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP  
2002-351157 20021203.

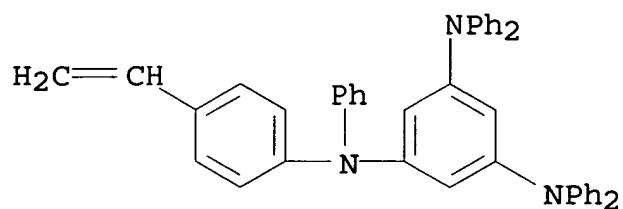
AB The invention relates to an org. **electroluminescent** device  
comprising a **light-emitting** layer contg. a  
phosphorescent dopant and a multifunctioning polymer, wherein, at  
least, the two of functional mol. units selected from a luminescent  
host unit, a hole transporting unit, and an electron transporting  
unit constitute the multifunctioning polymer.

IT 714976-02-0 714976-13-3 714976-16-6  
714976-18-8 714976-21-3 714976-27-9  
714976-29-1 714976-31-5 714976-33-7  
714976-35-9 714976-36-0 714976-38-2  
(org. **electroluminescent** device having phosphorescent  
dopant and multifunctioning polymer in **light**  
**emitting** layer)

RN 714976-02-0 HCA  
CN 1,3,5-Benzenetriamine, N-(4-ethenylphenyl)-N,N',N'',N'''-  
pentaphenyl-, polymer with 9-(4-ethenylphenyl)-9H-carbazole (9CI)  
(CA INDEX NAME)

CM 1

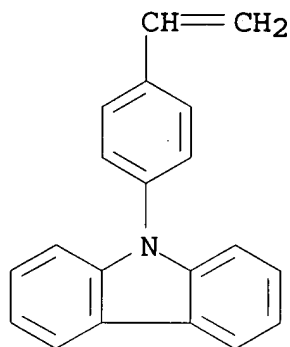
CRN 714976-01-9  
CMF C44 H35 N3



CM 2

CRN 52913-19-6

CMF C20 H15 N



RN 714976-13-3 HCA

CN 9H-Carbazole, 9-[4'-(9H-carbazol-9-yl)-2,2'-dimethyl[1,1'-biphenyl]-4-yl]-3-oxiranyl-, polymer with 3,5-bis(2,4-dimethylphenyl)-4-(4-oxiranylphenyl)-4H-1,2,4-triazole (9CI) (CA INDEX NAME)

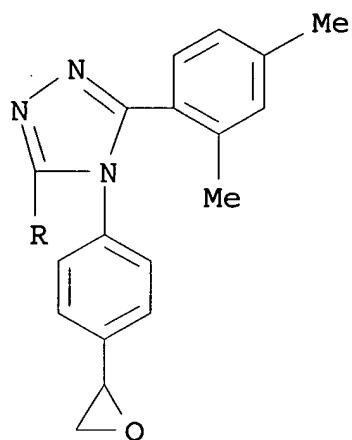
CM 1

CRN 714976-12-2

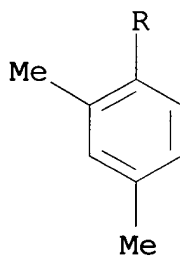
CMF C26 H25 N3 O



PAGE 1-A

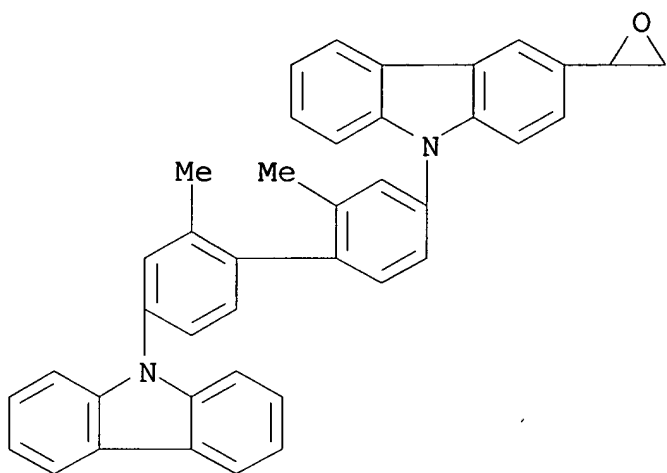


PAGE 2-A



CM 2

CRN 714976-10-0  
CMF C40 H30 N2 O



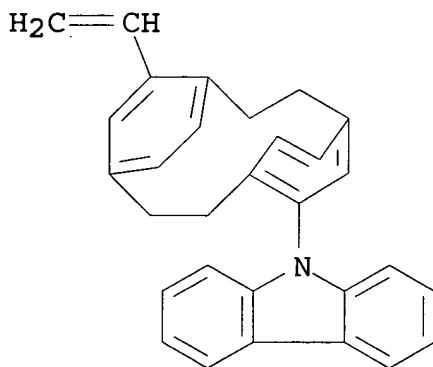
RN 714976-16-6 HCA

CN 9H-Carbazole, 9-(11-ethenyltricyclo[8.2.2.2<sup>4,7</sup>]hexadeca-4,6,10,12,13,15-hexaen-5-yl)-, polymer with 3,5-bis(2,5-dimethylphenyl)-4-(4-ethenylphenyl)-4H-1,2,4-triazole (9CI) (CA INDEX NAME)

CM 1

CRN 714976-15-5

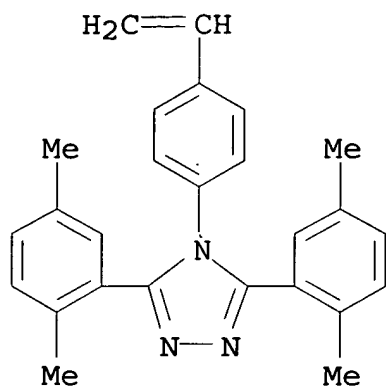
CMF C30 H25 N



CM 2

CRN 714976-14-4

CMF C26 H25 N3



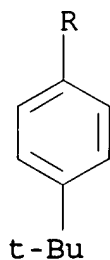
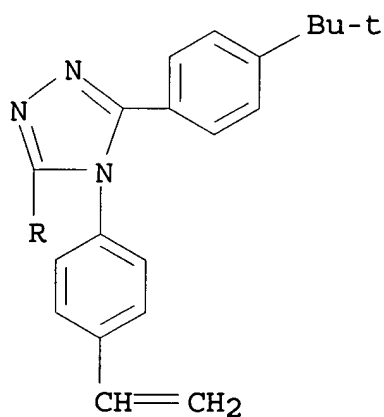
RN 714976-18-8 HCA

CN [1,1'-Biphenyl]-4,4'-diamine, 2,2'-dimethyl-N,N'-di-1-naphthalenyl-N,N'-diphenyl-, polymer with 3,5-bis[4-(1,1-dimethylethyl)phenyl]-4-(4-ethenylphenyl)-4H-1,2,4-triazole and 9-(4-ethenylphenyl)-9H-carbazole (9CI) (CA INDEX NAME)

CM 1

CRN 714976-17-7

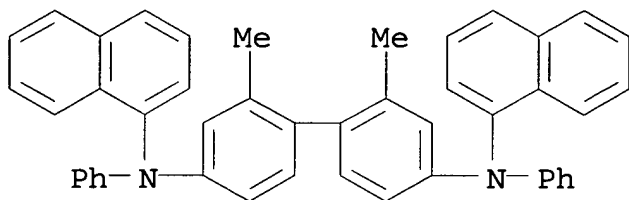
CMF C30 H33 N3



CM 2

CRN 495416-60-9

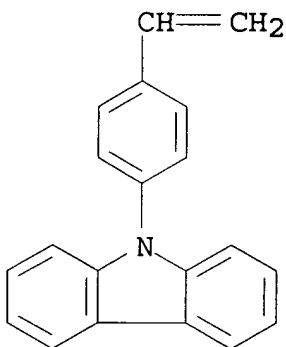
CMF C46 H36 N2



CM 3

CRN 52913-19-6

CMF C20 H15 N



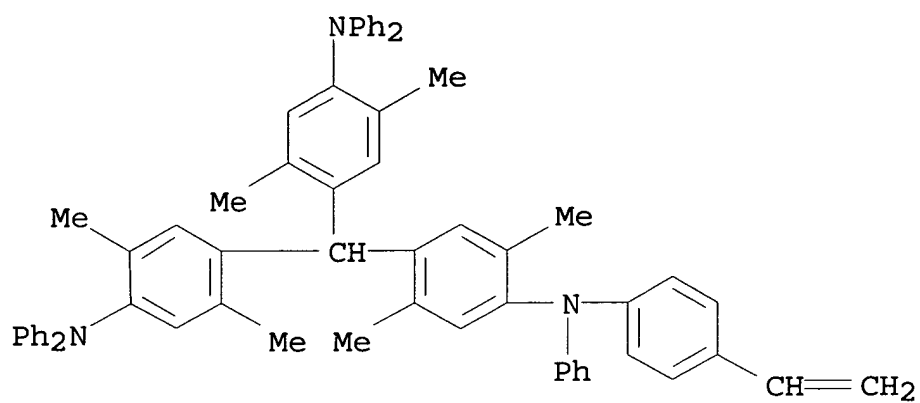
RN 714976-21-3 HCA

CN Benzenamine, 4,4'-[[4-[(4-ethenylphenyl)phenylamino]-2,5-dimethylphenyl]methylene]bis[2,5-dimethyl-N,N-diphenyl-, polymer with 3,5-bis(2,5-dimethylphenyl)-4-(4-ethenylphenyl)-4H-1,2,4-triazole and 9-(4-ethenylphenyl)-3,6-bis(2,4,6-trimethylphenyl)-9H-carbazole (9CI) (CA INDEX NAME)

CM 1

CRN 714976-20-2

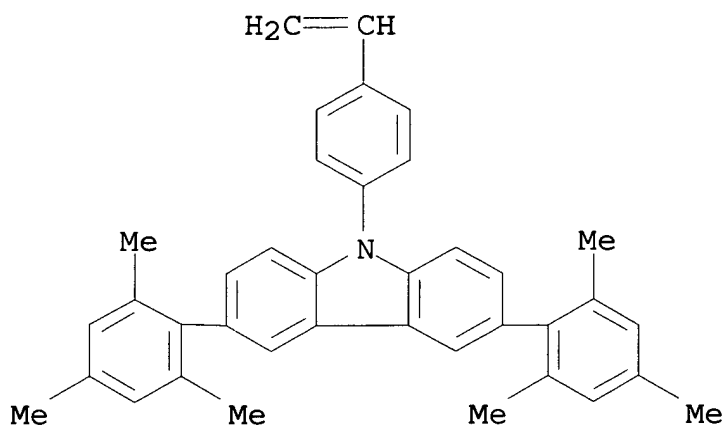
CMF C63 H57 N3



CM 2

CRN 714976-19-9

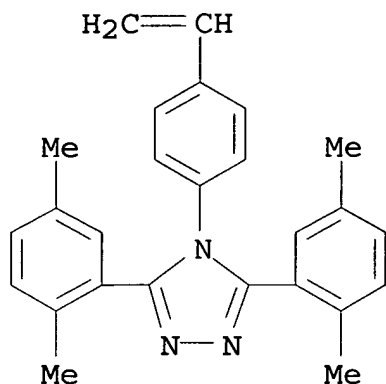
CMF C38 H35 N



CM 3

CRN 714976-14-4

CMF C26 H25 N3



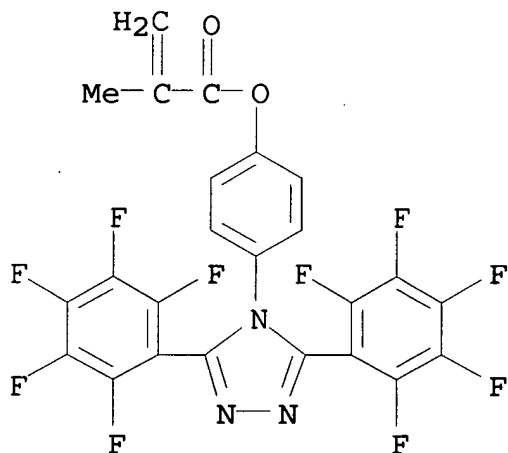
RN 714976-27-9 HCA

CN 2-Propenoic acid, 2-methyl-, 4-[bis[4-(9H-carbazol-9-yl)phenyl]methyl]-1-methylcyclohexyl ester, polymer with 1-[[4-[bis[4-(diphenylamino)phenyl]methyl]cyclohexyl]oxy]-3-buten-2-one and 4-[3,5-bis(pentafluorophenyl)-4H-1,2,4-triazol-4-yl]phenyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 714976-26-8

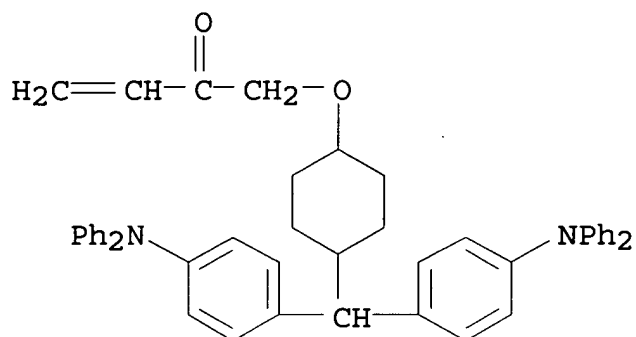
CMF C24 H9 F10 N3 O2



CM 2

CRN 714976-04-2

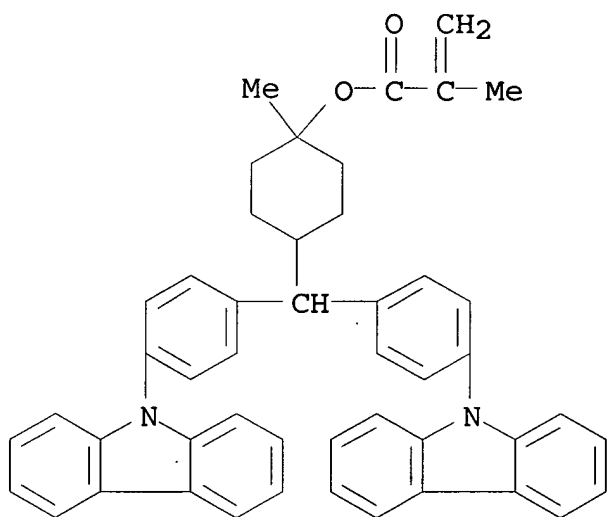
CMF C47 H44 N2 O2



CM 3

CRN 714976-03-1

CMF C48 H42 N2 O2



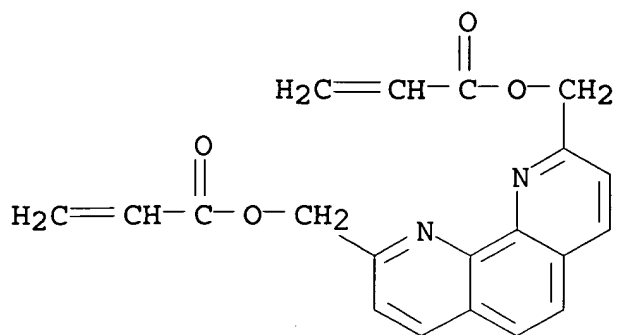
RN 714976-29-1 HCA

CN 2-Propenoic acid, 1,10-phenanthroline-2,9-diylbis(methylene) ester, polymer with [9-[4''-(9H-carbazol-9-yl)-2',5'-dimethyl[1,1':4',1''-terphenyl]-4-yl]-9H-carbazol-3-yl]methyl 2-propenoate and [4-[4'-(diphenylamino)-2,2'-dimethyl[1,1'-biphenyl]-4-yl]phenylaminophenyl]methyl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 714976-28-0

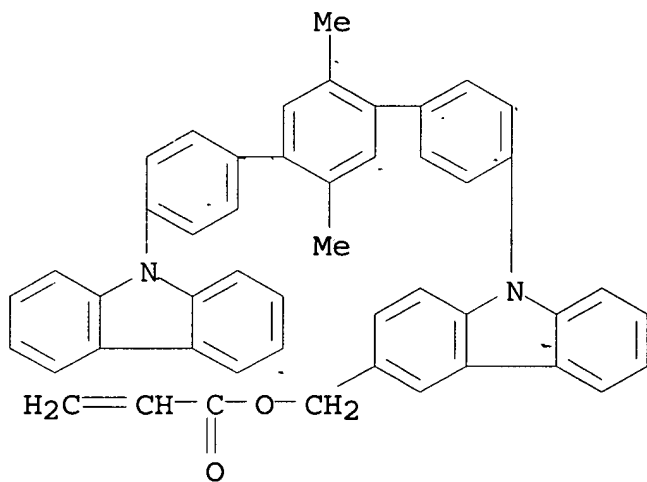
CMF C20 H16 N2 O4



CM 2

CRN 714976-07-5

CMF C48 H36 N2 O2

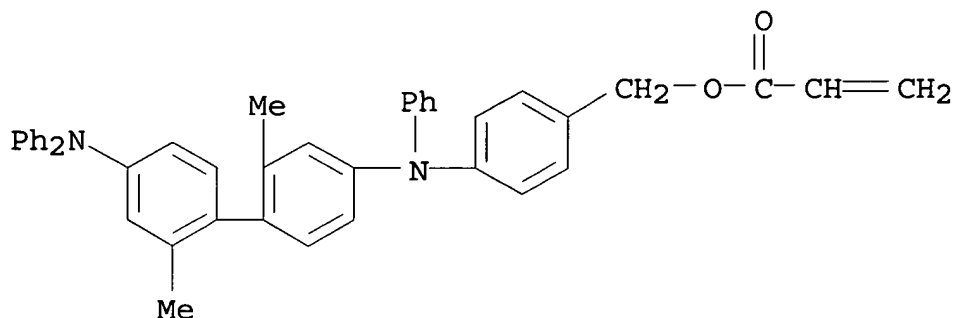


CM 3

CRN 714976-06-4

CMF C42 H36 N2 O2





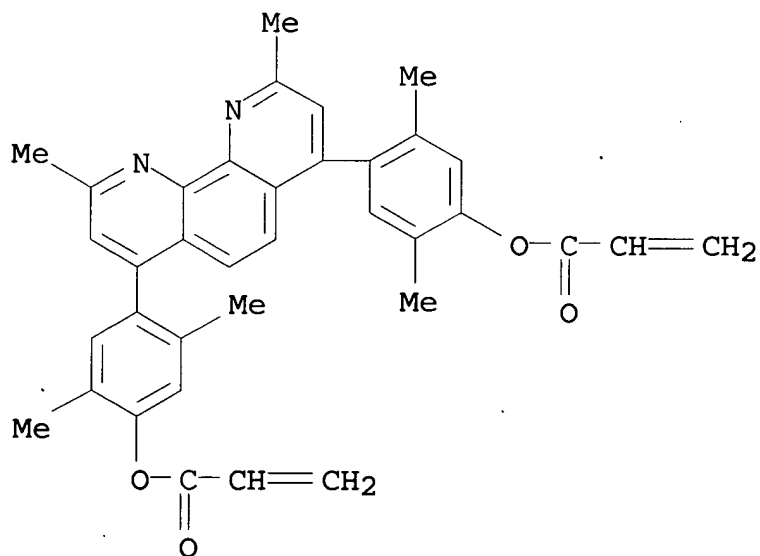
RN 714976-31-5 HCA

CN 2-Propenoic acid, (2,9-dimethyl-1,10-phenanthroline-4,7-diyl)bis(2,5-dimethyl-4,1-phenylene) ester, polymer with [9-[4''-(9H-carbazol-9-yl)-2',5'-dimethyl[1,1':4',1''-terphenyl]-4-yl]-9H-carbazol-3-yl]methyl 2-propenoate and [4-[[4'-(diphenylamino)-2,2'-dimethyl[1,1'-biphenyl]-4-yl]phenylamino]phenyl]methyl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 714976-30-4

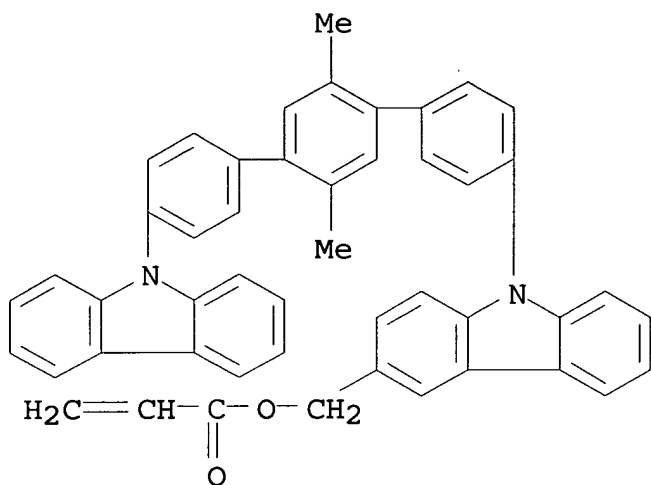
CMF C36 H32 N2 O4



CM 2

CRN 714976-07-5

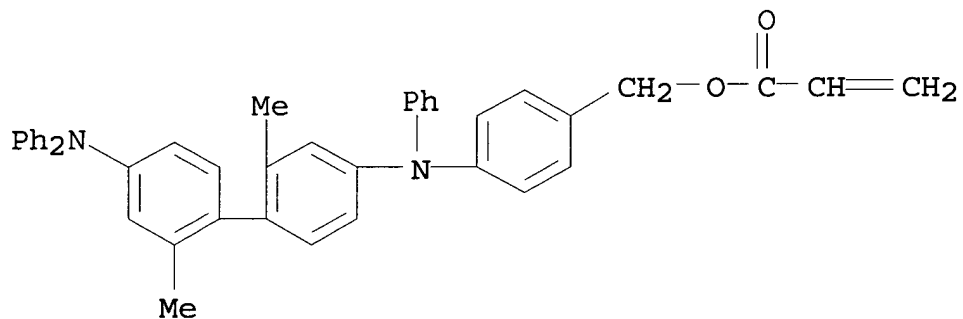
CMF C48 H36 N2 O2



CM 3

CRN 714976-06-4

CMF C42 H36 N2 O2



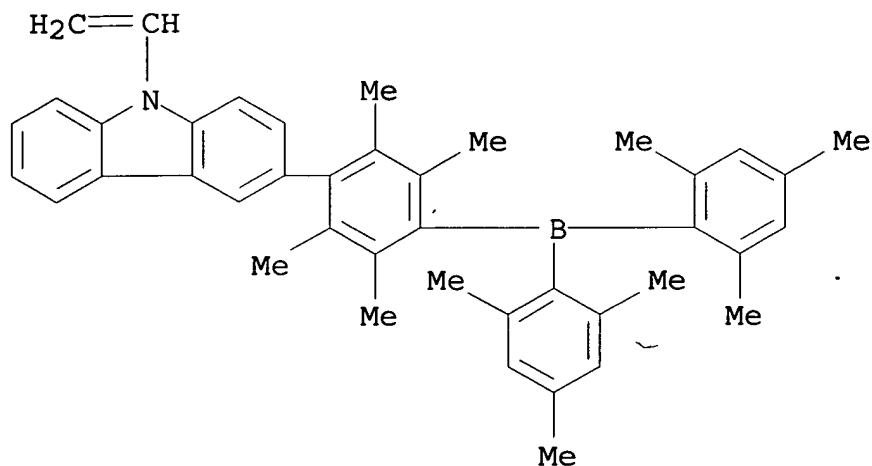
RN 714976-33-7 HCA

CN 9H-Carbazole, 3-[4-[bis(2,4,6-trimethylphenyl)boryl]-2,3,5,6-tetramethylphenyl]-9-ethenyl-, polymer with 3,5-bis(2,5-dimethylphenyl)-4-(4-ethenylphenyl)-4H-1,2,4-triazole (9CI) (CA INDEX NAME)

CM 1

CRN 714976-32-6

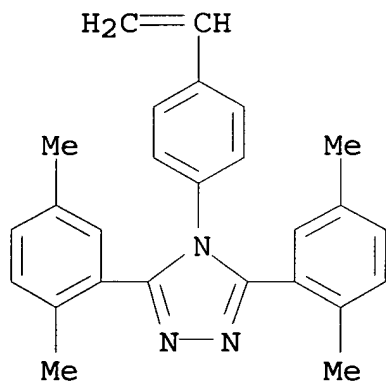
CMF C42 H44 B N



CM 2

CRN 714976-14-4

CMF C26 H25 N3



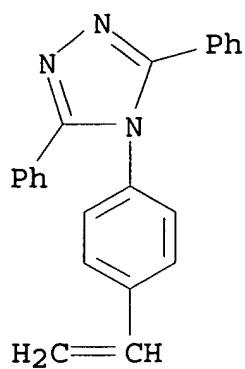
RN 714976-35-9 HCA

CN 3-Buten-2-one, 1-[[4-[bis[4-(diphenylamino)phenyl]methyl]cyclohexyl]oxy]-, polymer with 4-(4-ethenylphenyl)-3,5-diphenyl-4H-1,2,4-triazole and 9-(11-ethenyltricyclo[8.2.2.2<sup>4,7</sup>]hexadeca-4,6,10,12,13,15-hexaen-5-yl)-9H-carbazole (9CI) (CA INDEX NAME)

CM 1

CRN 714976-34-8

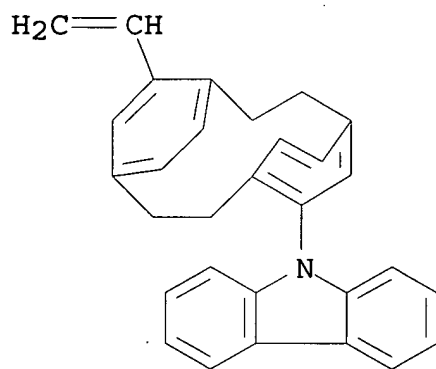
CMF C22 H17 N3

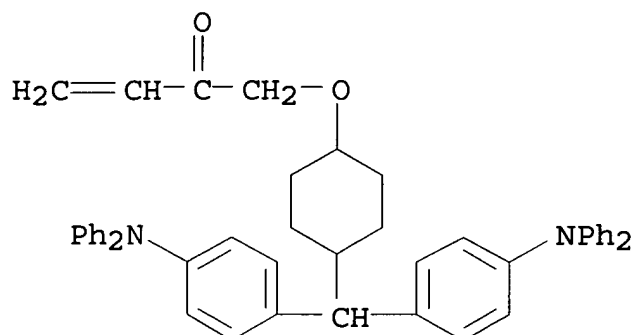


CM 2

CRN 714976-15-5

CMF C30 H25 N





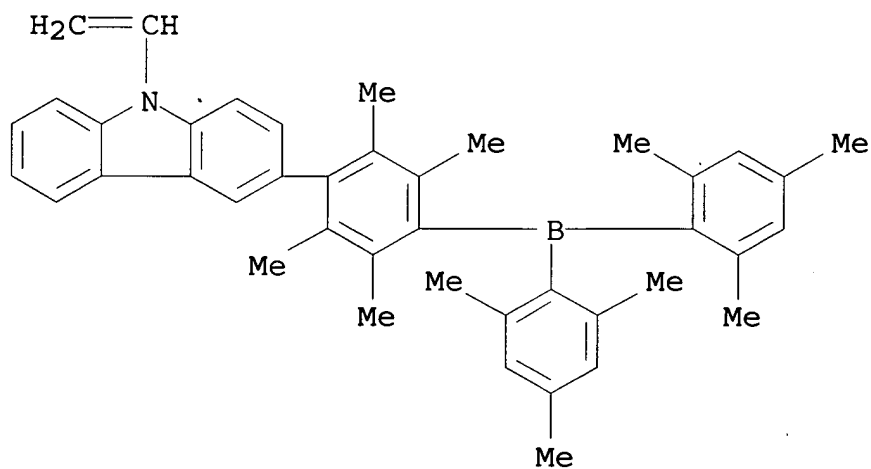
RN 714976-36-0 HCA

CN Benzenamine, 4,4'-[[4-[(4-ethenylphenyl)phenylamino]-2,5-dimethylphenyl]methylene]bis[2,5-dimethyl-N,N-diphenyl-, polymer with 3,5-bis(2,5-dimethylphenyl)-4-(4-ethenylphenyl)-4H-1,2,4-triazole and 3-[4-[bis(2,4,6-trimethylphenyl)boryl]-2,3,5,6-tetramethylphenyl]-9-ethenyl-9H-carbazole (9CI) (CA INDEX NAME)

CM 1

CRN 714976-32-6

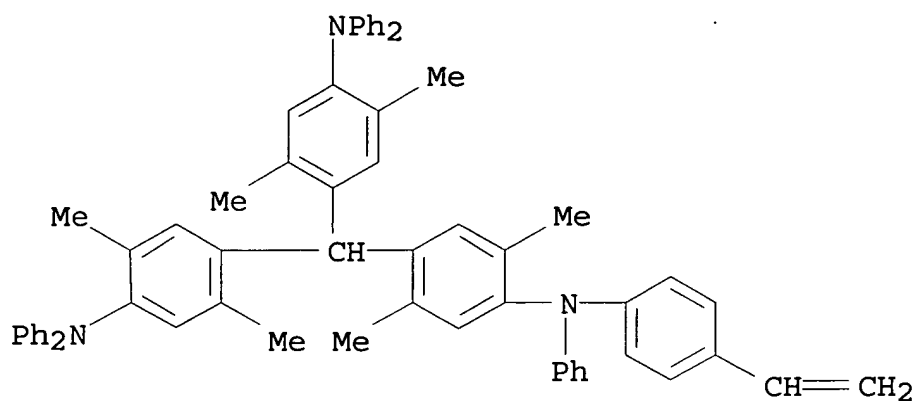
CMF C42 H44 B N



CM 2

CRN 714976-20-2

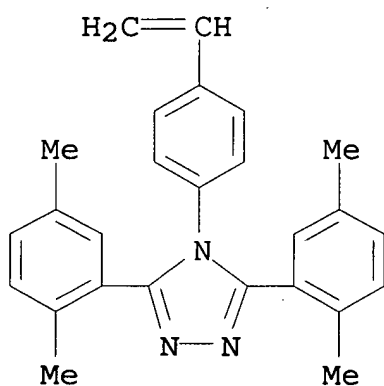
CMF C63 H57 N3



CM 3

CRN 714976-14-4

CMF C26 H25 N3



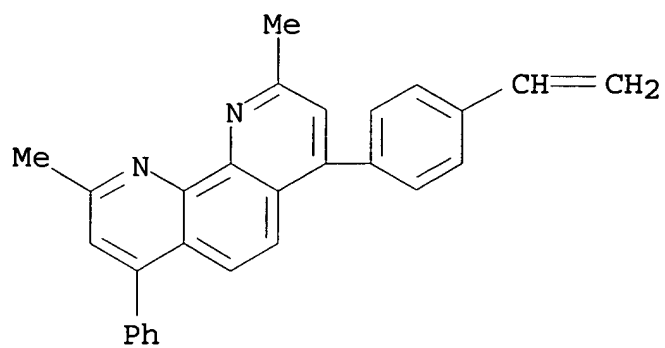
RN 714976-38-2 HCA

CN Benzenamine, 4,4'-[[4-[(4-ethenylphenyl)phenylamino]-2,5-dimethylphenyl]methylene]bis[2,5-dimethyl-N,N-diphenyl-, polymer with 9-[4'-(9H-carbazol-9-yl)-2,2'-dimethyl[1,1'-biphenyl]-4-yl]-3-ethenyl-9H-carbazole and 4-(4-ethenylphenyl)-2,9-dimethyl-7-phenyl-1,10-phenanthroline (9CI) (CA INDEX NAME)

CM 1

CRN 714976-37-1

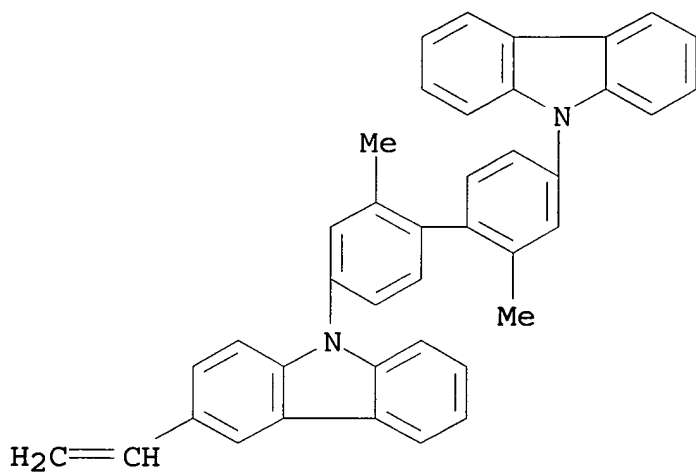
CMF C28 H22 N2



CM 2

CRN 714976-22-4

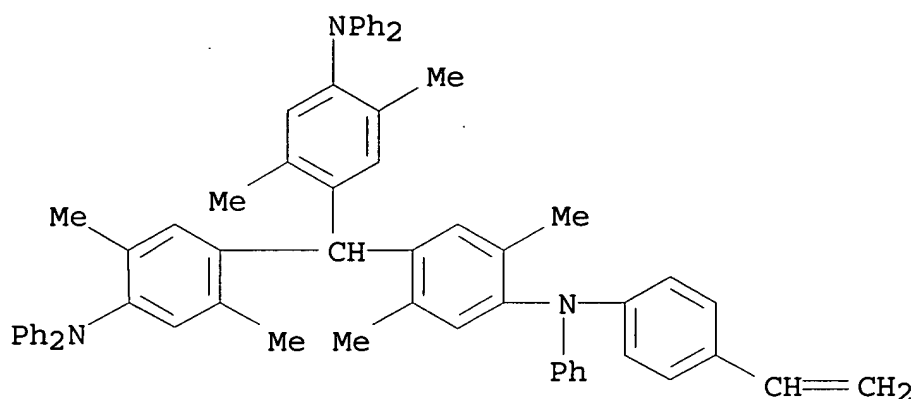
CMF C40 H30 N2



CM 3

CRN 714976-20-2

CMF C63 H57 N3

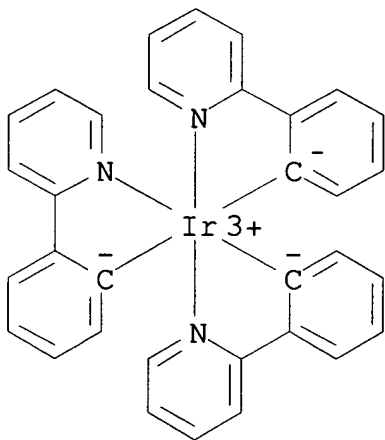


IT 94928-86-6 344796-22-1 376367-93-0

(org. **electroluminescent** device having phosphorescent  
dopant and multifunctioning polymer in **light**  
**emitting** layer)

RN 94928-86-6 HCA

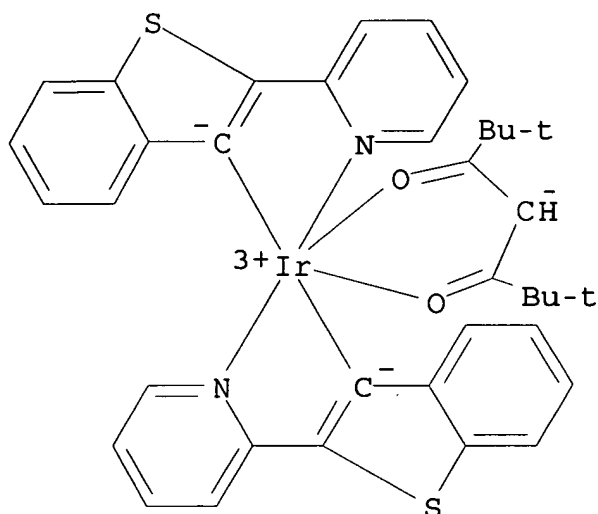
CN Iridium, tris[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]-, (OC-6-22) -  
(9CI) (CA INDEX NAME)



RN 344796-22-1 HCA

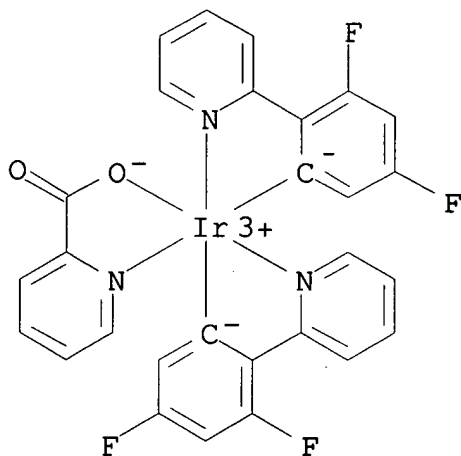
CN Iridium, bis[2-(2-pyridinyl-.kappa.N)benzo[b]thien-3-yl-  
.kappa.C] (2,2,6,6-tetramethyl-3,5-heptanedionato-.kappa.O,.kappa.O') -  
, (OC-6-33) - (9CI) (CA INDEX NAME)





RN 376367-93-0 HCA

CN Iridium, bis[3,5-difluoro-2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C] (2-pyridinecarboxylato-.kappa.N1,.kappa.O2)- (9CI) (CA INDEX NAME)



IC ICM H05B033-14

ICS C08F212-00; C08F220-34; C08F226-12; C08F293-00; C08G081-00;  
C08G085-00; C09K011-06; H05B033-10

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 37, 74

ST org **electroluminescent** device phosphoresce multifunction polymer

IT **Electroluminescent** devices  
Light sources

Optical imaging devices

Phosphorescent substances

(org. **electroluminescent** device having phosphorescent  
dopant and multifunctioning polymer in **light**  
**emitting** layer)

IT Polyesters, uses

Polyethers, uses

Polyurethanes, uses

(org. **electroluminescent** device having phosphorescent  
dopant and multifunctioning polymer in **light**  
**emitting** layer)

IT 714976-00-8 714976-02-0 714976-05-3 714976-08-6

714976-11-1 714976-13-3 714976-16-6

714976-18-8 714976-21-3 714976-25-7

714976-27-9 714976-29-1 714976-31-5

714976-33-7 714976-35-9 714976-36-0

714976-38-2

(org. **electroluminescent** device having phosphorescent  
dopant and multifunctioning polymer in **light**  
**emitting** layer)

IT 94928-86-6 344796-22-1 376367-93-0

(org. **electroluminescent** device having phosphorescent  
dopant and multifunctioning polymer in **light**  
**emitting** layer)

L57 ANSWER 2 OF 17 HCA COPYRIGHT 2005 ACS on STN

141:30891 Organic **electroluminescent** device and display.

Fukuda, Mitsuhiro; Kita, Hiroshi; Yamada, Taketoshi (Japan). U.S.

Pat. Appl. Publ. US 2004110031 A1 20040610, 37 pp. (English).

CODEN: USXXCO. APPLICATION: US 2003-718360 20031120. PRIORITY: JP  
2002-342192 20021126.

AB Disclosed is an org. **electroluminescent** device comprising  
a component layer including a **light emission**

layer, wherein the **light emission** layer contains

a phosphorescent compd., and the component layer contains a compd.

represented by A-(Z)n, [A = (un)substituted arom. ring residue; n =

3-6 integer; and Z = monovalent org. group represented by -L-Cz, [L

= chem. bond and divalent linking group; Cz = (un)substituted

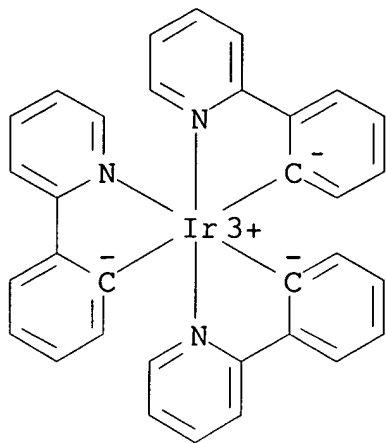
carbazole residue], provided that A-(Z)n does not have an n-fold  
axis of symmetry].

IT 94928-86-6 343978-79-0 376367-93-0

(org. **electroluminescent** device and display having  
**light emitting** layer contg. phosphorescent  
substance)

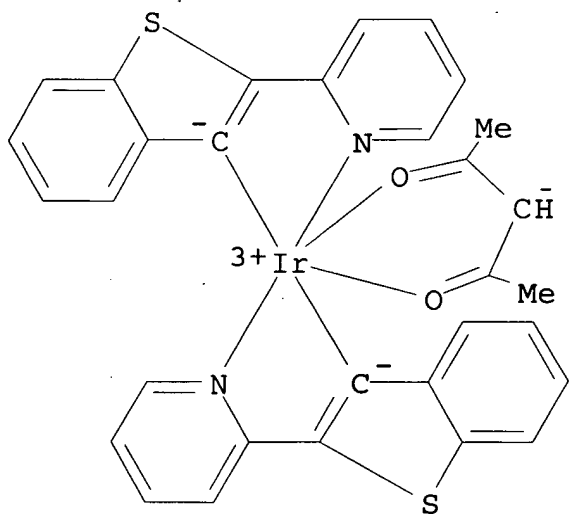
RN 94928-86-6 HCA

CN Iridium, tris[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]-, (OC-6-22)-  
(9CI) (CA INDEX NAME)



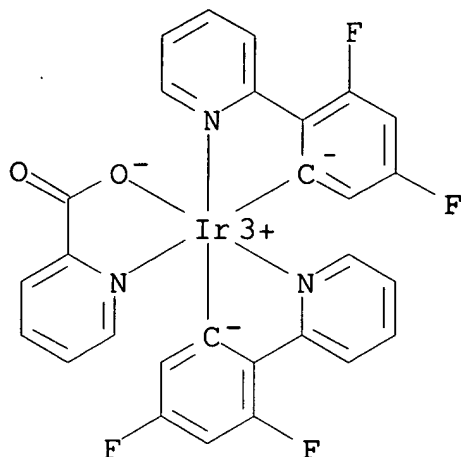
RN 343978-79-0 HCA

CN Iridium, (2,4-pentanedionato-.kappa.O,.kappa.O')bis[2-(2-pyridinyl-.kappa.N)benzo[b]thien-3-yl-.kappa.C]-, (OC-6-33)- (9CI) (CA INDEX NAME)

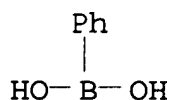


RN 376367-93-0 HCA

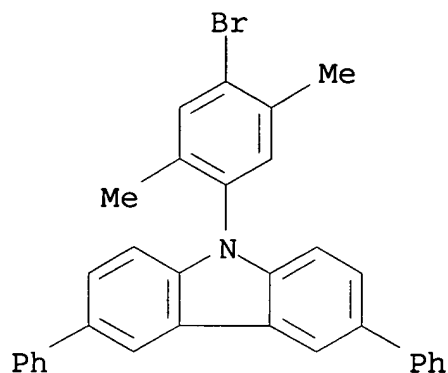
CN Iridium, bis[3,5-difluoro-2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C] (2-pyridinecarboxylato-.kappa.N1,.kappa.O2)- (9CI) (CA INDEX NAME)



IT 98-80-6  
 (org. electroluminescent device and display having  
 light emitting layer contg. phosphorescent  
 substance)  
 RN 98-80-6 HCA  
 CN Boronic acid, phenyl- (9CI) (CA INDEX NAME)

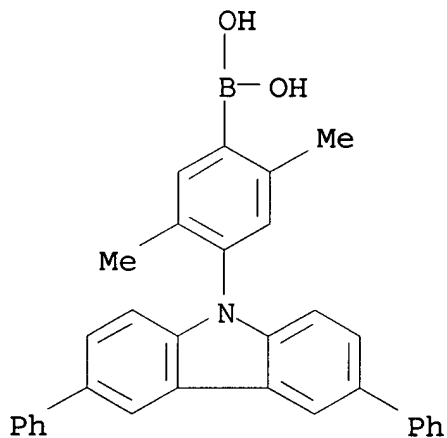


IT 699119-10-3P 699119-14-7P 699119-23-8P  
 699119-26-1P 699119-32-9P  
 (org. electroluminescent device and display having  
 light emitting layer contg. phosphorescent  
 substance)  
 RN 699119-10-3 HCA  
 CN 9H-Carbazole, 9-(4-bromo-2,5-dimethylphenyl)-3,6-diphenyl- (9CI)  
 (CA INDEX NAME)



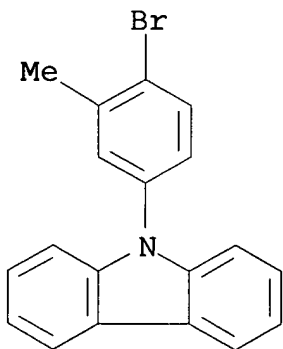
RN 699119-14-7 HCA

CN Boronic acid, [4-(3,6-diphenyl-9H-carbazol-9-yl)-2,5-dimethylphenyl]-(9CI) (CA INDEX NAME)



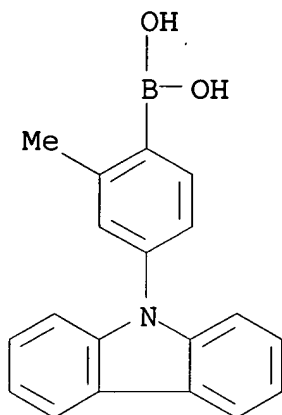
RN 699119-23-8 HCA

CN 9H-Carbazole, 9-(4-bromo-3-methylphenyl)- (9CI) (CA INDEX NAME)



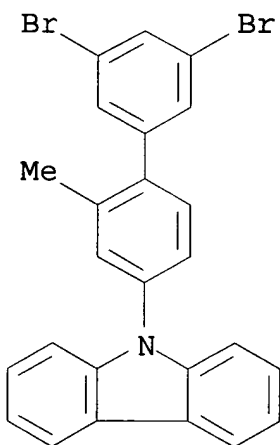
RN 699119-26-1 HCA

CN Boronic acid, [4-(9H-carbazol-9-yl)-2-methylphenyl] - (9CI) (CA INDEX NAME)



RN 699119-32-9 HCA

CN 9H-Carbazole, 9-(3',5'-dibromo-2-methyl[1,1'-biphenyl]-4-yl) - (9CI) (CA INDEX NAME)



IC ICM H05B033-14

INCL 428690000; 428917000; 313504000; 313506000; 257102000; 257103000

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 74

ST org **electroluminescent** device display phosphorescent substanceIT **Electroluminescent** devices(displays; org. **electroluminescent** device and display having **light emitting** layer contg. phosphorescent substance)

- IT **Luminescent screens**  
(**electroluminescent**; **org. electroluminescent** device and display having **light emitting** layer contg. phosphorescent substance)
- IT **Electroluminescent devices**  
Phosphorescent substances  
(**org. electroluminescent** device and display having **light emitting** layer contg. phosphorescent substance)
- IT 699119-91-0P  
(**org. electroluminescent** device and display having **light emitting** layer contg. phosphorescent substance)
- IT 94928-86-6 343978-79-0 376367-93-0  
(**org. electroluminescent** device and display having **light emitting** layer contg. phosphorescent substance)
- IT 699119-36-3P 699119-40-9P 699119-44-3P 699119-49-8P  
699119-54-5P 699119-58-9P 699119-61-4P 699119-65-8P  
699119-69-2P 699119-73-8P 699119-77-2P 699119-81-8P  
699119-86-3P 699119-96-5P 699120-00-8P  
(**org. electroluminescent** device and display having **light emitting** layer contg. phosphorescent substance)
- IT 86-74-8, 9H-Carbazole 98-80-6 626-39-1 2408-70-0  
36847-11-7 202865-85-8 699119-05-6  
(**org. electroluminescent** device and display having **light emitting** layer contg. phosphorescent substance)
- IT 6825-20-3P 56525-79-2P 699119-10-3P 699119-14-7P  
699119-23-8P 699119-26-1P 699119-32-9P  
(**org. electroluminescent** device and display having **light emitting** layer contg. phosphorescent substance)
- L57 ANSWER 3 OF 17 HCA COPYRIGHT 2005 ACS on STN  
140:304660 Electroactive and **electroluminescent** polymers, monomers, organic electronic devices which comprise these polymers and compositions, and fabricating these devices. Roberts, Ralph R.; Bentsen, James G.; Li, Yingbo (3M Innovative Properties Company, USA). -U.S. Pat. Appl. Publ. US 2004062930 A1 20040401, 86 pp. (English). CODEN: USXXCO. APPLICATION: US 2002-254218 20020925.
- AB Electroactive polymeric arylenes and intermediates are useful for electronic devices. Donor sheets incorporating **light-emitting** polymers in a transfer layer were produced for laser induced thermal imaging studies.
- IT 676350-01-9DP, Ph end capped 676350-03-1P

676350-04-2DP, Ph end capped 676350-05-3DP, Ph end capped 676350-06-4DP, Ph end capped  
(electronic devices which comprise arylene polymers)

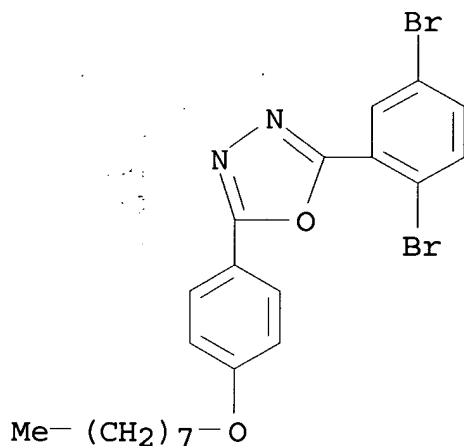
RN 676350-01-9 HCA

CN 1,3,4-Oxadiazole, 2-(2,5-dibromophenyl)-5-[4-(octyloxy)phenyl]-, polymer with 2,2'-(1,4-phenylene)bis[4,4,5,5-tetramethyl-1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

CM 1

CRN 676349-86-3

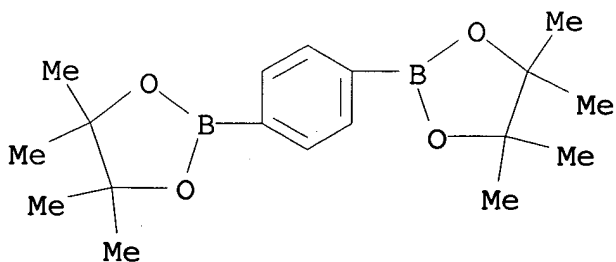
CMF C22 H24 Br2 N2 O2



CM 2

CRN 99770-93-1

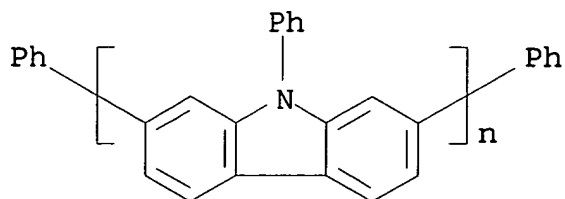
CMF C18 H28 B2 O4



RN 676350-03-1 HCA

CN Poly(9-phenyl-9H-carbazole-2,7-diyl), .alpha.,.omega.-diphenyl- (9CI) (CA INDEX NAME)





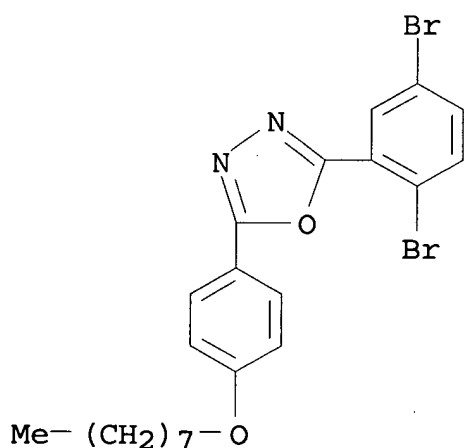
RN 676350-04-2 HCA

CN 2,1,3-Benzothiadiazole, 4,7-dibromo-, polymer with  
 2-(2,5-dibromophenyl)-5-[4-(octyloxy)phenyl]-1,3,4-oxadiazole and  
 2,2'-(9,9-dioctyl-9H-fluorene-2,7-diyl)bis[4,4,5,5-tetramethyl-1,3,2-  
 dioxaborolane] (9CI) (CA INDEX NAME)

CM 1

CRN 676349-86-3

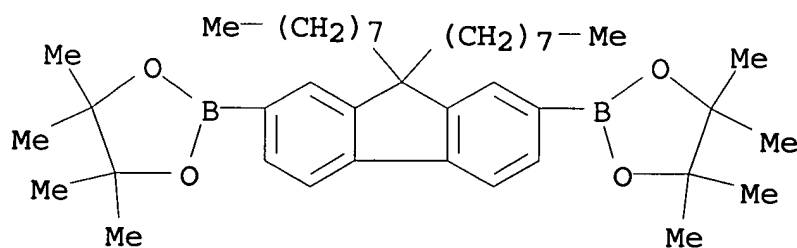
CMF C22 H24 Br2 N2 O2



CM 2

CRN 196207-58-6

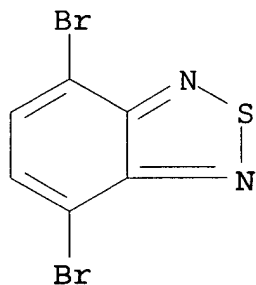
CMF C41 H64 B2 O4



CM 3

CRN 15155-41-6

CMF C6 H2 Br2 N2 S



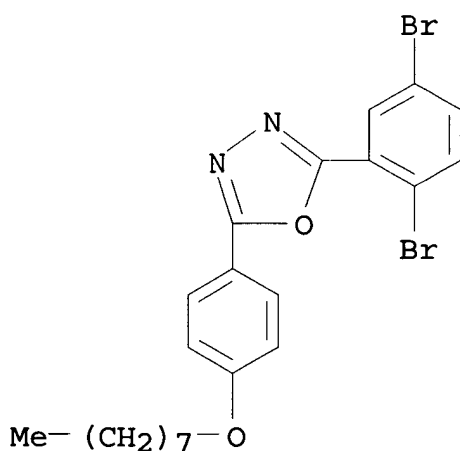
RN 676350-05-3 HCA

CN 9H-Carbazole, 3,6-dibromo-9-phenyl-, polymer with  
2,7-dibromo-9,9-dioctyl-9H-fluorene, 2-(2,5-dibromophenyl)-5-[4-(octyloxy)phenyl]-1,3,4-oxadiazole and 2,2'-(9,9-dioctyl-9H-fluorene-2,7-diyl)bis[4,4,5,5-tetramethyl-1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

CM 1

CRN 676349-86-3

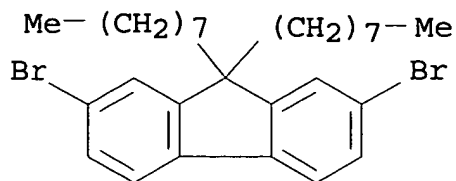
CMF C22 H24 Br2 N2 O2



CM 2

CRN 198964-46-4

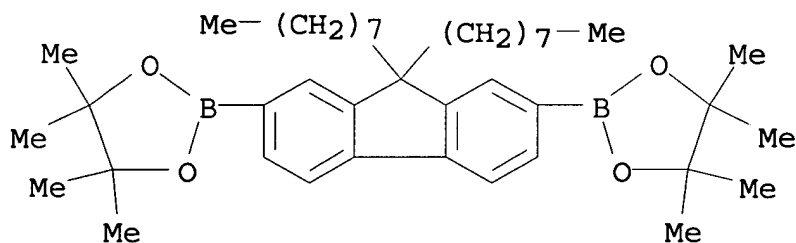
CMF C29 H40 Br2



CM 3

CRN 196207-58-6

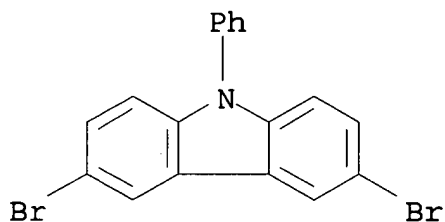
CMF C41 H64 B2 O4



CM 4

CRN 57103-20-5

CMF C18 H11 Br2 N



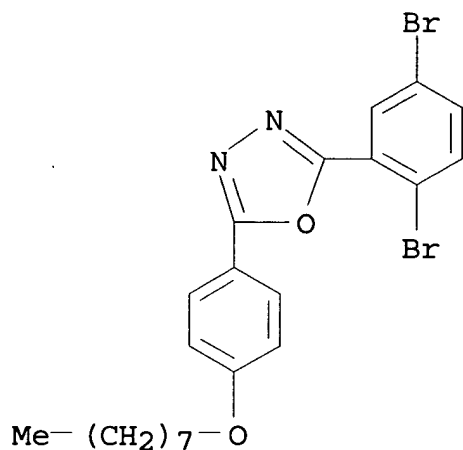
RN 676350-06-4 HCA

CN 1,3,4-Oxadiazole, 2-(2,5-dibromophenyl)-5-[4-(octyloxy)phenyl]-, polymer with 2,7-dibromo-9,9-dioctyl-9H-fluorene and 2,2'-(9,9-dioctyl-9H-fluorene-2,7-diyl)bis[4,4,5,5-tetramethyl-1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

CM 1

CRN 676349-86-3

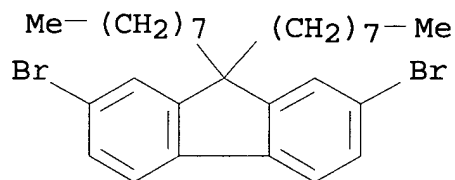
CMF C22 H24 Br2 N2 O2



CM 2

CRN 198964-46-4

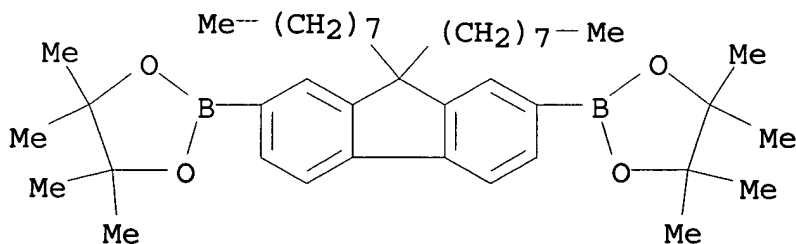
CMF C29 H40 Br2



CM 3

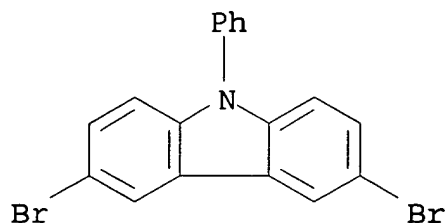
CRN 196207-58-6

CMF C41 H64 B2 O4



IT 57103-20-5, 3,6-Dibromo-9-phenylcarbazole  
 (electronic devices which comprise arylene polymers)  
 RN 57103-20-5 HCA

CN 9H-Carbazole, 3,6-dibromo-9-phenyl- (9CI) (CA INDEX NAME)

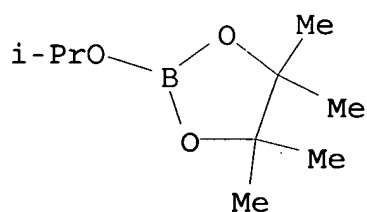


IT 61676-62-8, 2-Isopropoxy-4,4,5,5-tetramethyl-1,3,2-dioxaborolane

(electronic devices which comprise **light-emitting** arylene polymers)

RN 61676-62-8 HCA

CN 1,3,2-Dioxaborolane, 4,4,5,5-tetramethyl-2-(1-methylethoxy)- (9CI) (CA INDEX NAME)

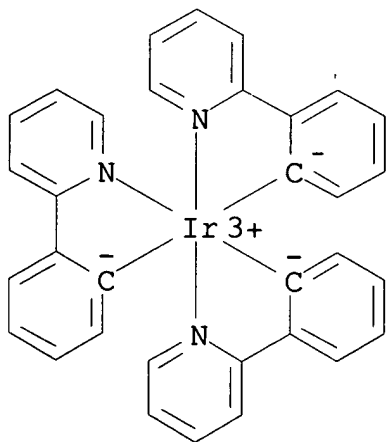


IT 94928-86-6

(emitter; electronic devices which comprise arylene polymers)

RN 94928-86-6 HCA

CN Iridium, tris[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]-, (OC-6-22)- (9CI) (CA INDEX NAME)

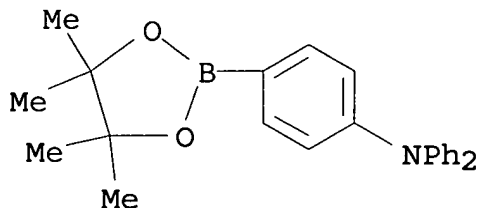


IT 267221-88-5P 618442-58-3P 618442-59-4P

(end capping agent; electronic devices which comprise  
light-emitting arylene polymers)

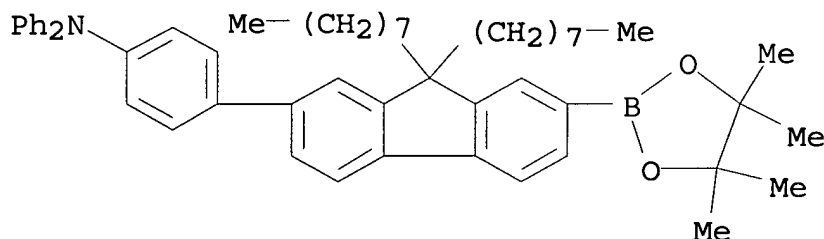
RN 267221-88-5 HCA

CN Benzenamine, N,N-diphenyl-4-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)- (9CI) (CA INDEX NAME)



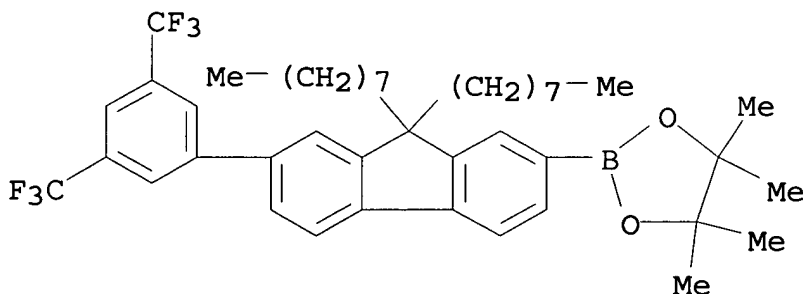
RN 618442-58-3 HCA

CN Benzenamine, 4-[9,9-dioctyl-7-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)-9H-fluoren-2-yl]-N,N-diphenyl- (9CI) (CA INDEX NAME)



RN 618442-59-4 HCA

CN 1,3,2-Dioxaborolane, 2-[7-[3,5-bis(trifluoromethyl)phenyl]-9,9-dioctyl-9H-fluoren-2-yl]-4,4,5,5-tetramethyl- (9CI) (CA INDEX NAME)



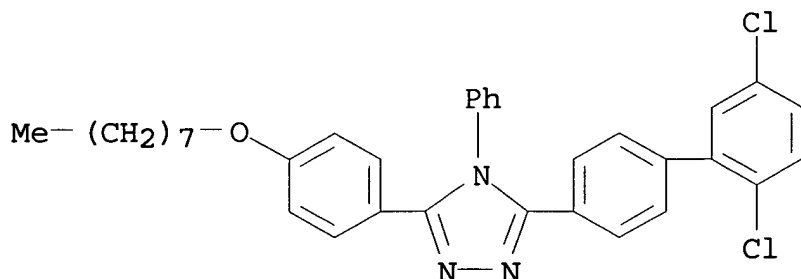
IT 676350-09-7

(monomer; electronic devices which comprise arylene polymers)

RN 676350-09-7 HCA

CN 4H-1,2,4-Triazole, 3-(2',5'-dichloro[1,1'-biphenyl]-4-yl)-5-[4-

(octyloxy)phenyl]-4-phenyl- (9CI) (CA INDEX NAME)

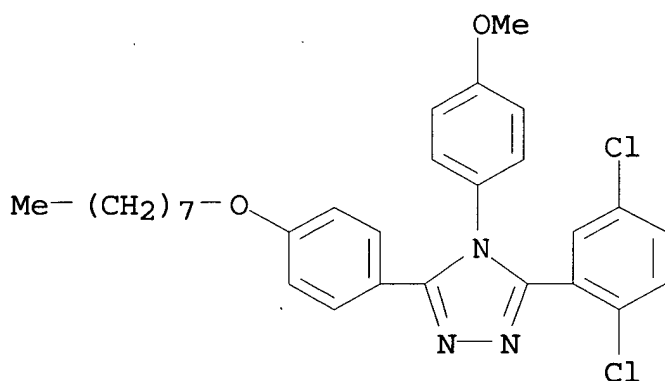


IT 676349-96-5P

(monomer; electronic devices which comprise **light-emitting** arylene polymers)

RN 676349-96-5 HCA

CN 4H-1,2,4-Triazole, 3-(2,5-dichlorophenyl)-4-(4-methoxyphenyl)-5-[4-(octyloxy)phenyl]- (9CI) (CA INDEX NAME)



IT 676350-02-0DP, Ph end capped

(prepn. and block polymn.; electronic devices which comprise arylene polymers)

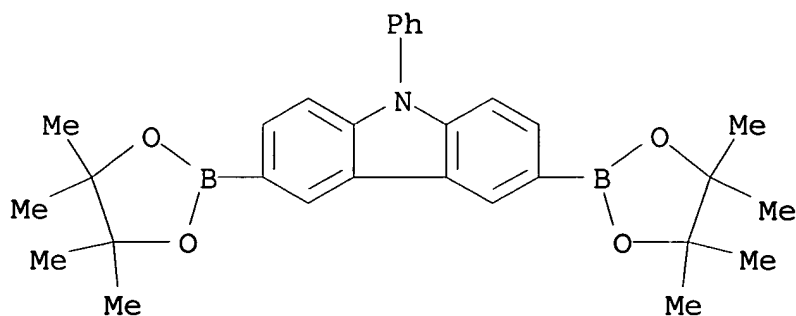
RN 676350-02-0 HCA

CN 9H-Carbazole, 3,6-dibromo-9-phenyl-, polymer with 9-phenyl-3,6-bis(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)-9H-carbazole (9CI) (CA INDEX NAME)

CM 1

CRN 618442-57-2

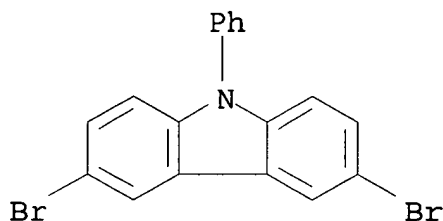
CMF C30 H35 B2 N O4



CM 2

CRN 57103-20-5

CMF C18 H11 Br2 N

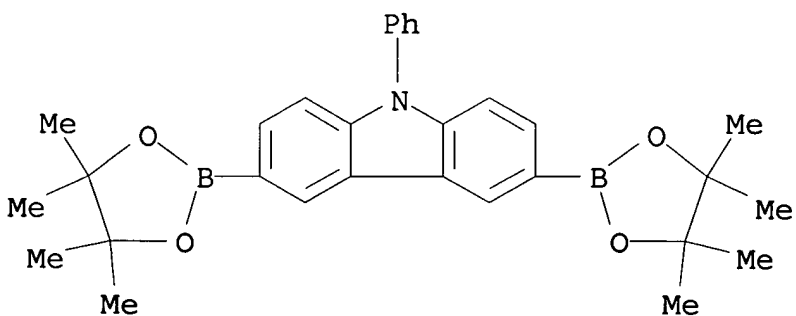


IT 618442-57-2P

(prepn. and polymn.; electronic devices which comprise arylene polymers)

RN 618442-57-2 HCA

CN 9H-Carbazole, 9-phenyl-3,6-bis(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)- (9CI) (CA INDEX NAME)

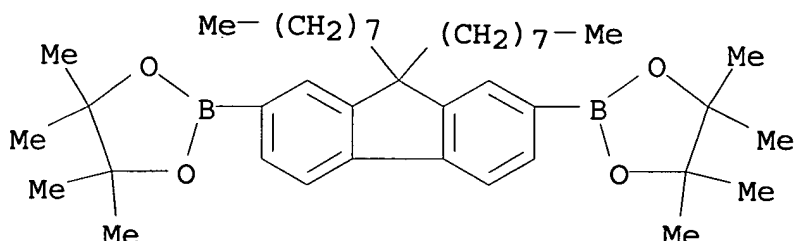


IT 196207-58-6

(reaction with bromodiphenylaniline; electronic devices which comprise **light-emitting** arylene polymers)



RN 196207-58-6 HCA  
 CN 1,3,2-Dioxaborolane, 2,2'-(9,9-dioctyl-9H-fluorene-2,7-diyl)bis[4,4,5,5-tetramethyl- (9CI) (CA INDEX NAME)



IC ICM G03F007-34  
 ICS G03F007-11  
 INCL 428411100; 430200000; 430201000; 430319000; 430271100; 428917000; 528004000  
 CC 37-3 (Plastics Manufacture and Processing)  
 Section cross-reference(s): 73, 74, 76  
 ST **electroluminescent** device polymeric arylene; thermal transfer donor element polymeric arylene  
 IT **Electroluminescent** devices  
 (lamps; electronic devices which comprise **light-emitting** arylene polymers)  
 IT 610-71-9, 2,5-Dibromobenzoic acid  
 (chlorination; electronic devices which comprise **light-emitting** arylene polymers)  
 IT 15082-28-7, 2-(4-Biphenyl)-5-(4-tert-butylphenyl)-1,3,4-**oxadiazole**  
 (electron transport agent; electronic devices which comprise arylene polymers)  
 IT 108-86-1DP, Bromobenzene, reaction products with arylene polymers  
 108-90-7DP, Chlorobenzene, reaction products with arylene polymers  
 302554-80-9DP, 2-Bromo-9,9-dioctylfluorene, reaction products with arylene polymers 676349-97-6DP, Ph end capped 676349-98-7DP, Ph end capped 676349-99-8DP, Ph end capped 676350-00-8DP, Ph end capped 676350-01-9DP, Ph end capped 676350-03-1P  
 676350-04-2DP, Ph end capped 676350-05-3DP, Ph end capped 676350-06-4DP, Ph end capped 676479-00-8P  
 676479-04-2P 676479-16-6P 676479-56-4P  
 (electronic devices which comprise arylene polymers)  
 IT 57103-20-5, 3,6-Dibromo-9-phenylcarbazole  
 (electronic devices which comprise arylene polymers)  
 IT 676349-83-0P  
 (electronic devices which comprise **light-emitting** arylene polymers)  
 IT 50-79-3, 2,5-Dichlorobenzoic acid 111-83-1, 1-Octyl bromide  
 302-01-2, Hydrazine, reactions 328-70-1, 3,5-

- Bistrifluoromethylbromobenzene 2251-50-5, Pentafluorobenzoyl chloride 2905-69-3, Methyl 2,5-dichlorobenzoate 4181-05-9, 4-(Diphenylamino)benzaldehyde 7466-54-8 10025-87-3, Phosphorus chloride oxide (PCl3O) 36809-26-4 54149-17-6, 1-Bromo-2-(2-methoxyethoxy)ethane 61676-62-8, 2-Isopropoxy-4,4,5,5-tetramethyl-1,3,2-dioxaborolane (electronic devices which comprise **light-emitting** arylene polymers)
- IT 2683-82-1, Octaethyl porphyrin 94928-86-6 676350-07-5 (emitter; electronic devices which comprise arylene polymers)
- IT 93986-10-8P 267221-88-5P 618442-58-3P 618442-59-4P 618442-60-7P (end capping agent; electronic devices which comprise **light-emitting** arylene polymers)
- IT 642477-39-2 (hole transport polymer; electronic devices which comprise **light-emitting** arylene polymers)
- IT 428865-62-7P (intermediate chlorination; electronic devices which comprise **light-emitting** arylene polymers)
- IT 89-75-8P, 2,4-Dichlorobenzoyl chloride 55510-49-1P 67487-35-8P, 2,5-Dichlorobenzohydrazide 302554-80-9P, 2-Bromo-9,9-dioctylfluorene 331988-94-4P 676349-81-8P 676349-85-2P 676349-87-4P 676349-90-9P 676349-92-1P 676349-94-3P (intermediate; electronic devices which comprise **light-emitting** arylene polymers)
- IT 676350-08-6 676350-09-7 676350-10-0 676350-11-1 676350-12-2 676350-13-3 676350-14-4 (monomer; electronic devices which comprise arylene polymers)
- IT 180690-29-3P (monomer; electronic devices which comprise **light-emitting** arylene polymers)
- IT 676349-82-9P 676349-84-1P 676349-86-3P 676349-88-5P 676349-91-0P 676349-93-2P 676349-95-4P 676349-96-5P (monomer; electronic devices which comprise **light-emitting** arylene polymers)
- IT 676350-02-0DP, Ph end capped (prepn. and block polymn.; electronic devices which comprise arylene polymers)
- IT 618442-57-2P (prepn. and polymn.; electronic devices which comprise arylene polymers)
- IT 25069-74-3P (prepn. and polymn.; electronic devices which comprise **light-emitting** arylene polymers)
- IT 104-94-9, p-Anisidine (reaction with benzohydrazide deriv.; electronic devices which comprise **light-emitting** arylene polymers)

- IT 16433-88-8, 2,7-Dibromofluorene  
(reaction with bromo methoxyethoxy ethane; electronic devices which comprise **light-emitting** arylene polymers)
- IT 196207-58-6  
(reaction with bromodiphenylaniline; electronic devices which comprise **light-emitting** arylene polymers)
- IT 676349-89-6P  
(reaction with dichlorobenzohydrazide; electronic devices which comprise **light-emitting** arylene polymers)
- IT 43100-38-5, 4-tert-Butylbenzoyl hydrazide  
(reaction with dichlorobenzoyl chloride; electronic devices which comprise **light-emitting** arylene polymers)
- IT 59615-13-3P, 2,5-Dibromobenzoyl Chloride  
(reaction with hydrazide compd.; electronic devices which comprise **light-emitting** arylene polymers)
- IT 62435-37-4P, Methyl 4-octyloxybenzoate  
(reaction with hydrazine; electronic devices which comprise **light-emitting** arylene polymers)
- IT 122-01-0, 4-Chlorobenzoyl chloride  
(reaction with methoxybenzoyl hydrazide; electronic devices which comprise **light-emitting** arylene polymers)
- IT 2905-62-6, 3,5-Dichlorobenzoyl chloride 23950-59-6, 3,5-Dibromobenzoyl chloride  
(reaction with octoxybenzoyl hydrazide; electronic devices which comprise **light-emitting** arylene polymers)
- IT 99-76-3, Methyl 4-hydroxybenzoate 1133-80-8, 2-Bromofluorene  
(reaction with octyl bromide; electronic devices which comprise **light-emitting** arylene polymers)

L57 ANSWER 4 OF 17 HCA COPYRIGHT 2005 ACS on STN

140:235901 Preparation of neutral **iridium** metallic dendrimer

**complexes** and their use as **light-emitting**

devices. Samuel, Ifor David William; Burn, Paul Leslie; Lo, Shih-Chun (Isis Innovation Limited, UK; The University Court of the University of St. Andrews). PCT Int. Appl. WO 2004020448 A1 20040311, 46 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2003-GB3725 20030828. PRIORITY: GB 2002-19987 20020828.

GI

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

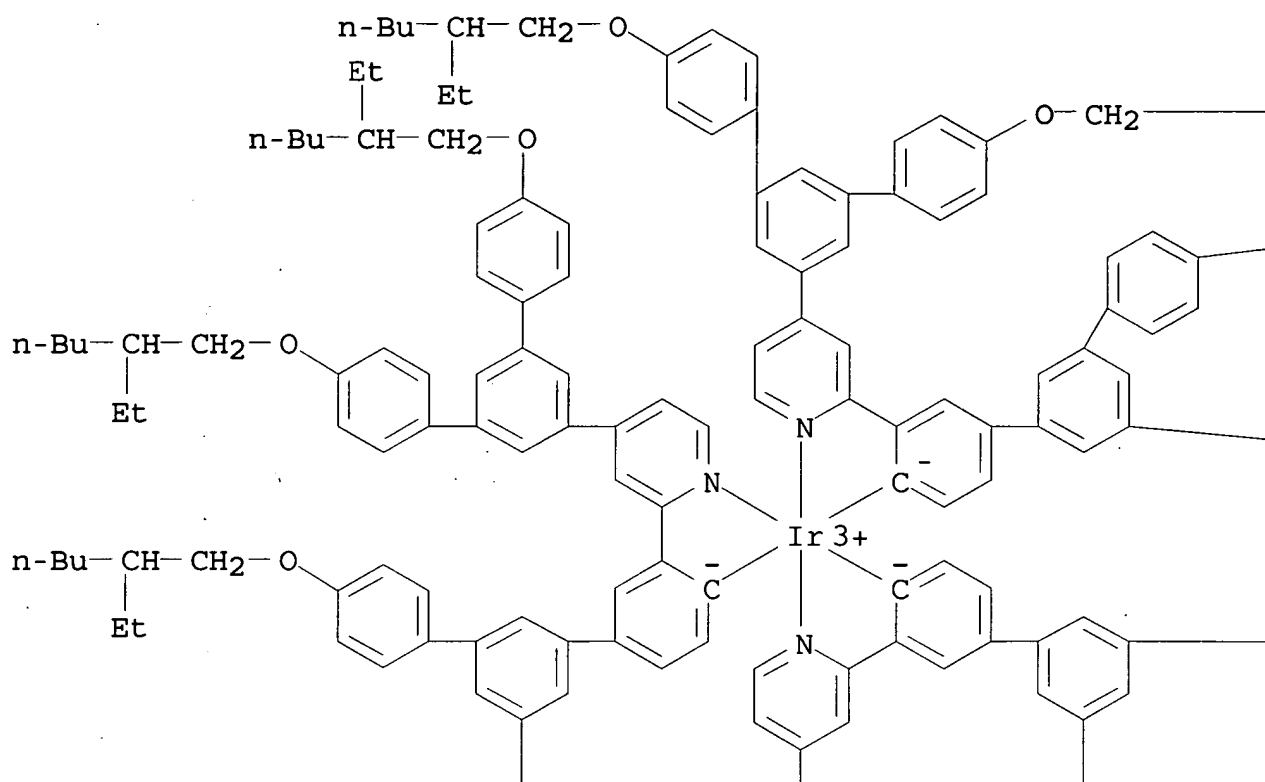
AB A charge-neutral organometallic dendrimer is described, said dendrimer having the formula I: CORE-[DENDRITE(-Q)<sub>a</sub>]<sub>n</sub> in which CORE represents a group of formula M<sub>x</sub>Y<sub>z</sub>, in which M represents a metal cation, x represents an integer of 1 or more, each X which may be the same or different represents a mono-, bi- or tri-dentate coordinating group, z represents 0 or an integer of 1 or more, and each Y which may be the same or different represents a coordinating group, the total of (b.x) + (c.z) being equal to the no. of coordination sites on M, wherein b is the no. of coordination sites on X and c is the no. of coordination sites on Y; n represents an integer of 2 or more; each DENDRITE which may be the same or different represents a dendritic mol. structure bonded to a group X; a represents 0 or an integer of 1 or more; and each Q which may be the same or different represents a surface group; CORE terminating in the first single bond which is connected to a branching group or branching atom of DENDRITE; which dendrimer has a structure in which no hemisphere of a notional sphere centered on M and contg. the dendrimer is devoid of a said first single bond. Thus, prepn. of I is described in several steps starting from bromopyridine and the prepd. compds. are useful in electro-optic devices, and in particular **light-emitting** devices.

IT 668438-42-4P 668438-50-4P  
(prepn. of neutral **iridium** dendrimer **complexes**  
and their use as **light-emitting** devices)

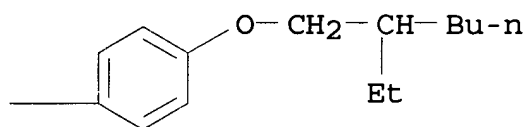
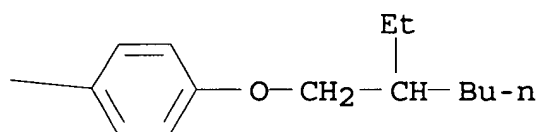
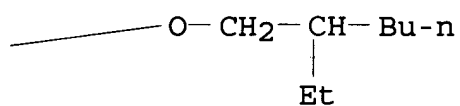
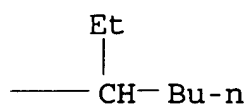
RN 668438-42-4 HCA

CN Iridium, tris[3-[4-[4,4''-bis[(2-ethylhexyl)oxy][1,1':3',1''-terphenyl]-5'-yl]-2-pyridinyl-.kappa.N]-4''-[(2-ethylhexyl)oxy]-5'-[4-[(2-ethylhexyl)oxy]phenyl][1,1':3',1''-terphenyl]-4-yl-.kappa.C]-, (OC-6-22)- (9CI) (CA INDEX NAME)

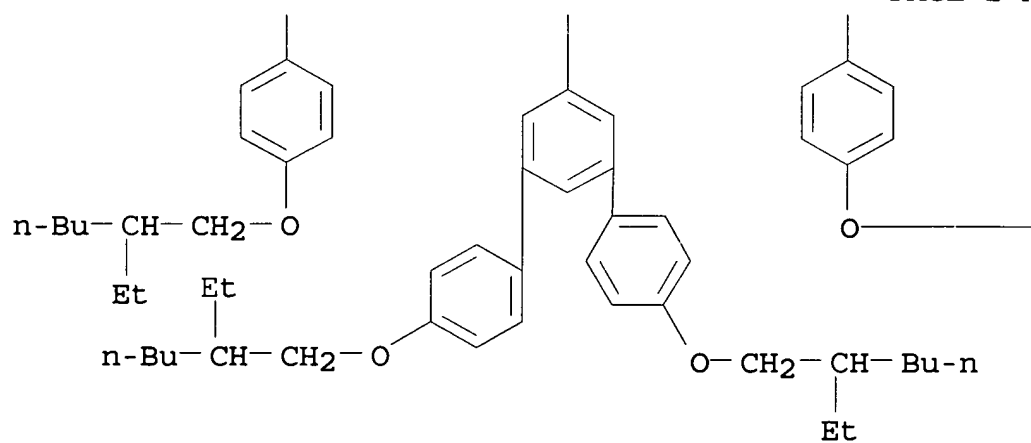
PAGE 1-A



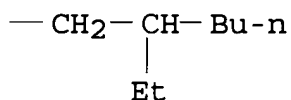
PAGE 1-B



PAGE 2-A



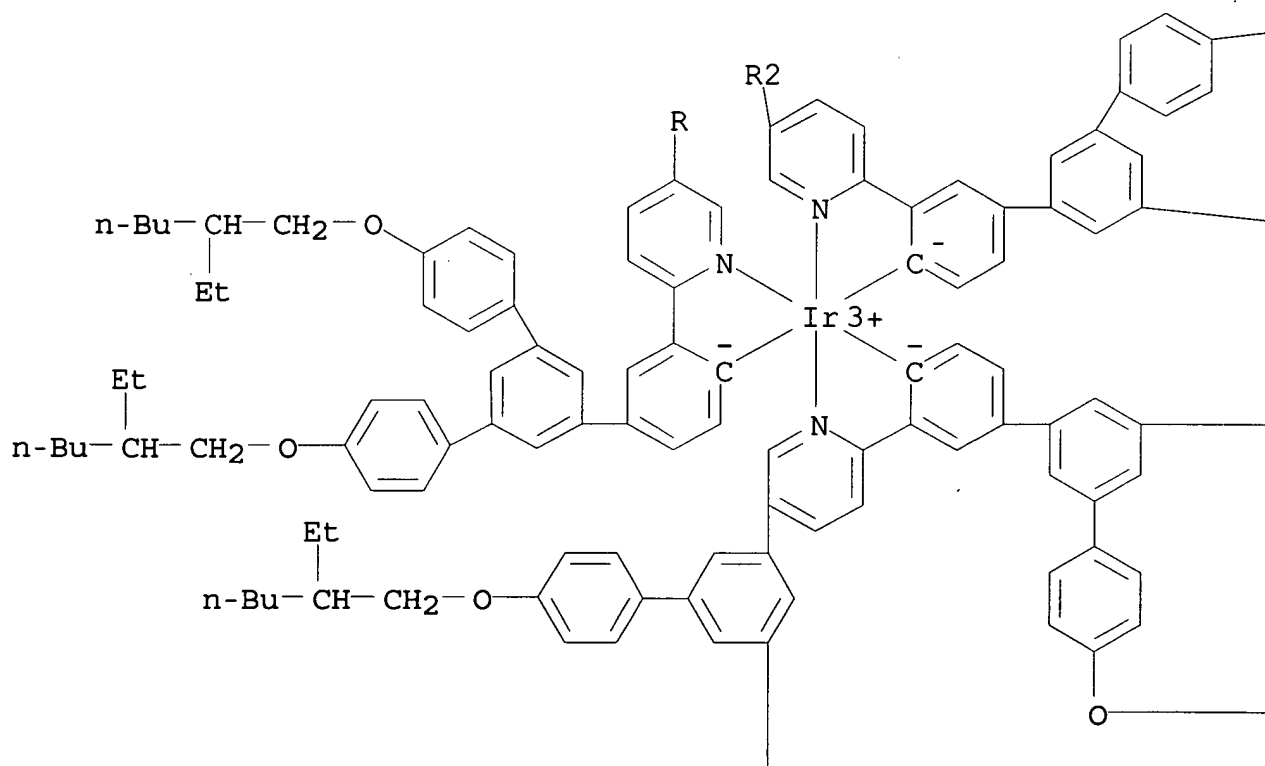
PAGE 2-B



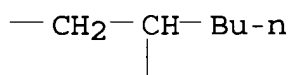
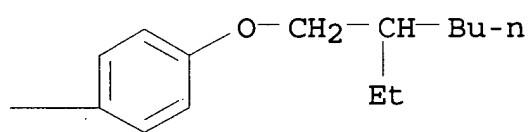
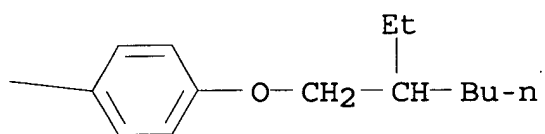
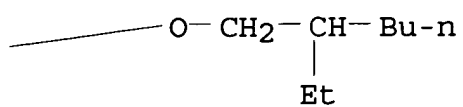
RN 668438-50-4 HCA

CN Iridium, tris[3-[5-[4,4''-bis[(2-ethylhexyl)oxy][1,1':3',1''-terphenyl]-5'-yl]-2-pyridinyl-.kappa.N]-4''-[(2-ethylhexyl)oxy]-5'-[4-[(2-ethylhexyl)oxy]phenyl][1,1':3',1''-terphenyl]-4-yl-.kappa.C]-, (OC-6-22)-(9CI) (CA INDEX NAME)

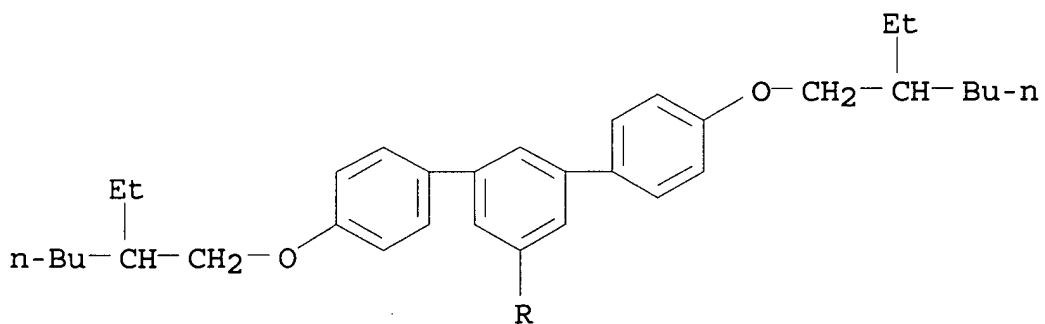
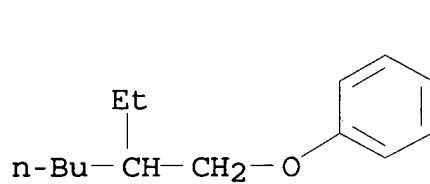
PAGE 1-A



PAGE 1-B



PAGE 2-A

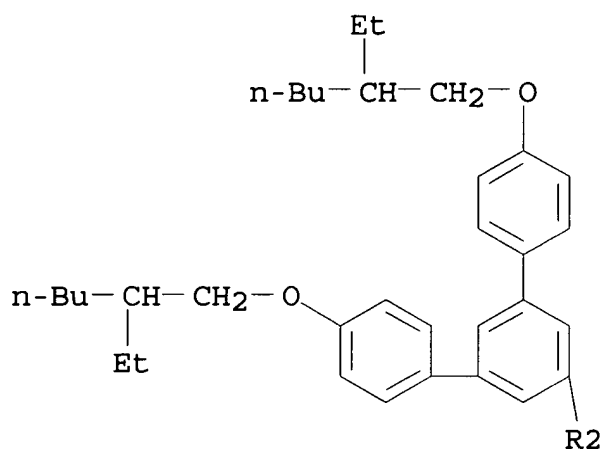




PAGE 2-B

Et

PAGE 3-A

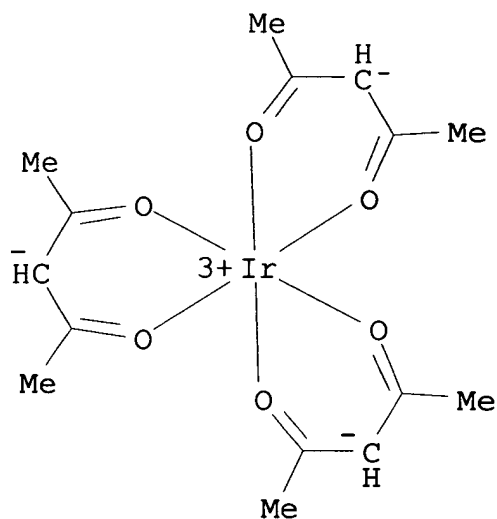


IT 15635-87-7, Tris(acetylacetonato)iridium 61676-62-8  
 89598-96-9, 3-Bromophenylboronic acid 452369-36-7  
 452914-03-3

(prepn. of neutral **iridium** dendrimer **complexes**  
 and their use as **light-emitting** devices)

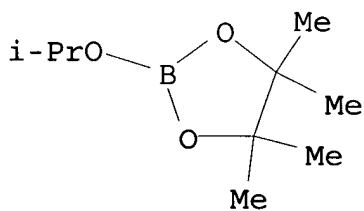
RN 15635-87-7 HCA

CN Iridium, tris(2,4-pentanedionato-.kappa.O,.kappa.O')-, (OC-6-11)-  
 (9CI) (CA INDEX NAME)



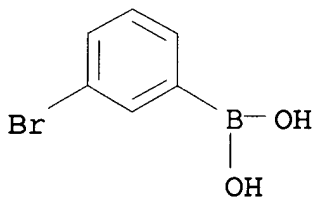
RN 61676-62-8 HCA

CN 1,3,2-Dioxaborolane, 4,4,5,5-tetramethyl-2-(1-methylethoxy) - (9CI)  
(CA INDEX NAME)



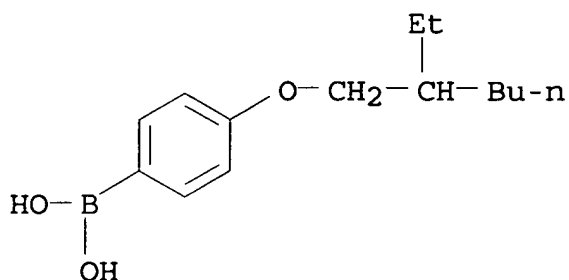
RN 89598-96-9 HCA

CN Boronic acid, (3-bromophenyl)- (9CI) (CA INDEX NAME)



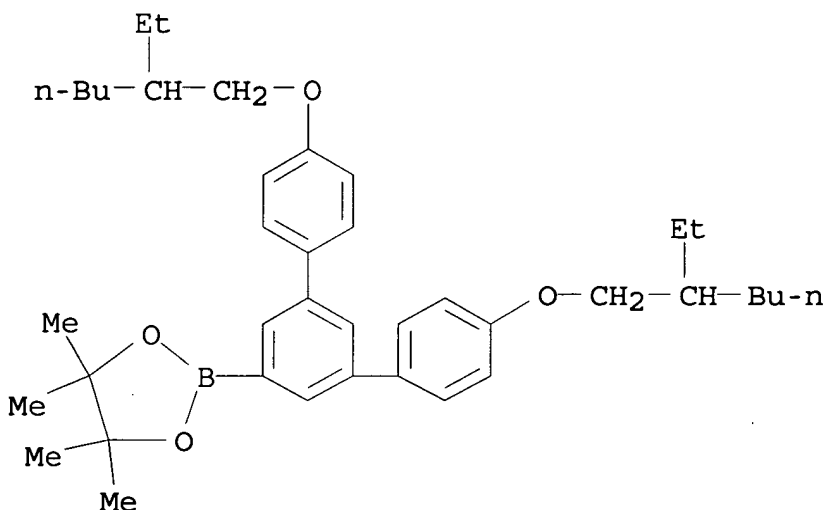
RN 452369-36-7 HCA

CN Boronic acid, [4-[(2-ethylhexyl)oxy]phenyl]- (9CI) (CA INDEX NAME)



RN 452914-03-3 HCA

CN 1,3,2-Dioxaborolane, 2-[4,4''-bis[(2-ethylhexyl)oxy][1,1':3',1''-terphenyl]-5'-yl]-4,4,5,5-tetramethyl- (9CI) (CA INDEX NAME)



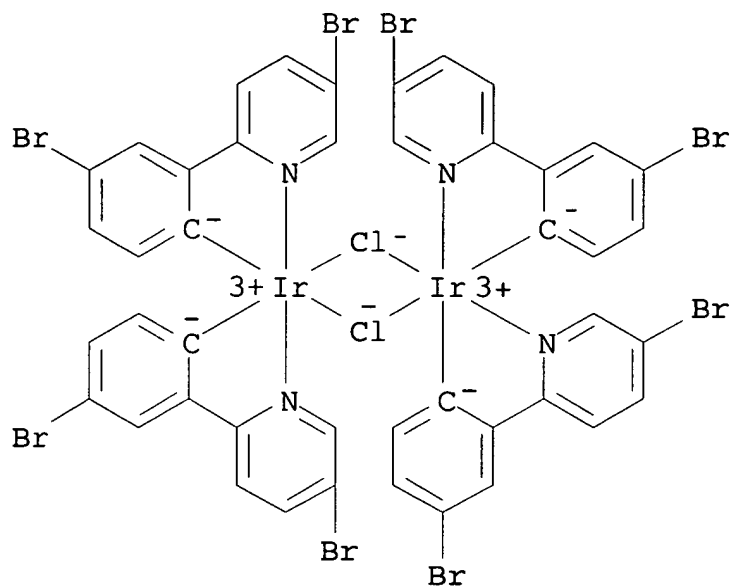
IT 668438-46-8P 668438-48-0P 668438-52-6P

668438-54-8P 668438-56-0P

(prepn. of neutral **iridium** dendrimer **complexes**  
and their use as **light-emitting** devices)

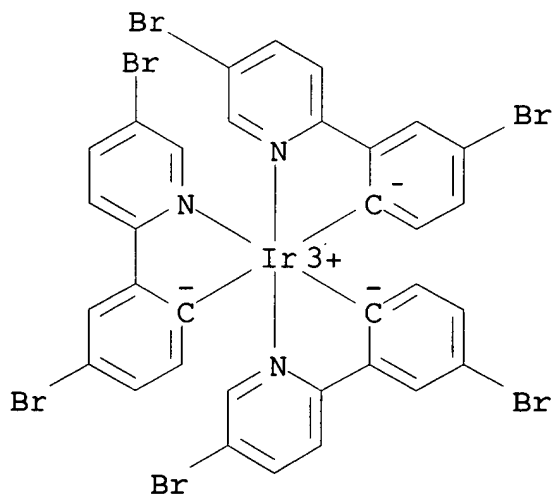
RN 668438-46-8 HCA

CN Iridium, tetrakis[4-bromo-2-(5-bromo-2-pyridinyl-.kappa.N)phenyl-.kappa.C]di-.mu.-chlorodi- (9CI) (CA INDEX NAME)



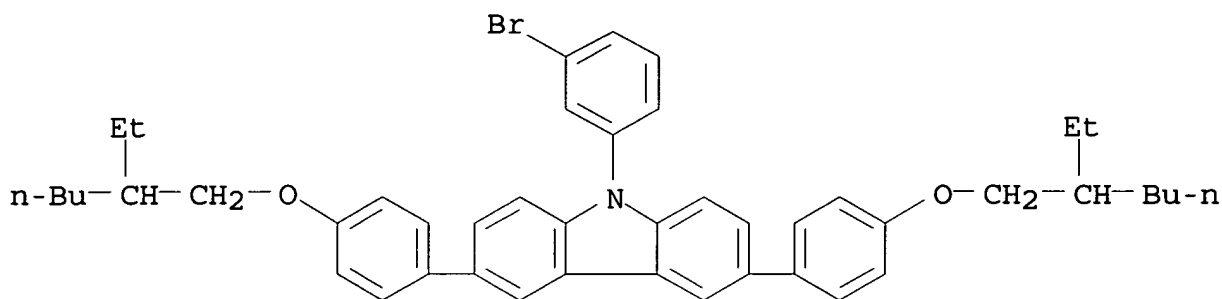
RN 668438-48-0 HCA

CN Iridium, tris[4-bromo-2-(5-bromo-2-pyridinyl-κN)phenyl-κC-], (OC-6-22) - (9CI) (CA INDEX NAME)



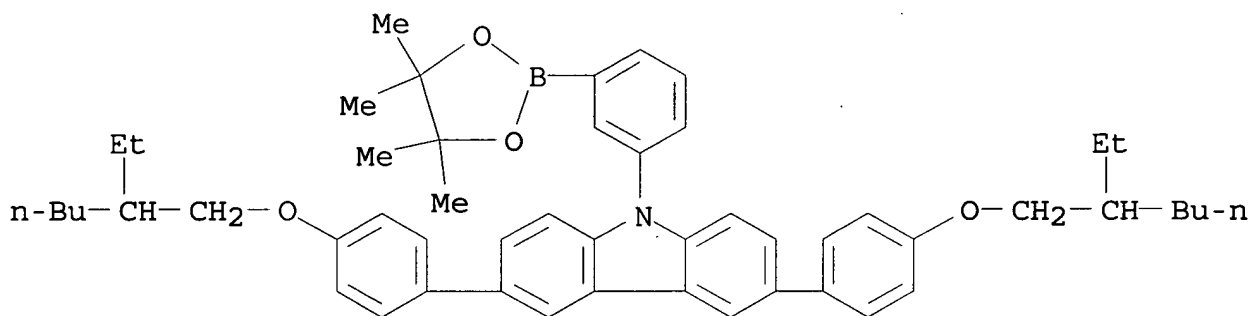
RN 668438-52-6 HCA

CN 9H-Carbazole, 9-(3-bromophenyl)-3,6-bis[4-[(2-ethylhexyl)oxy]phenyl] - (9CI) (CA INDEX NAME)



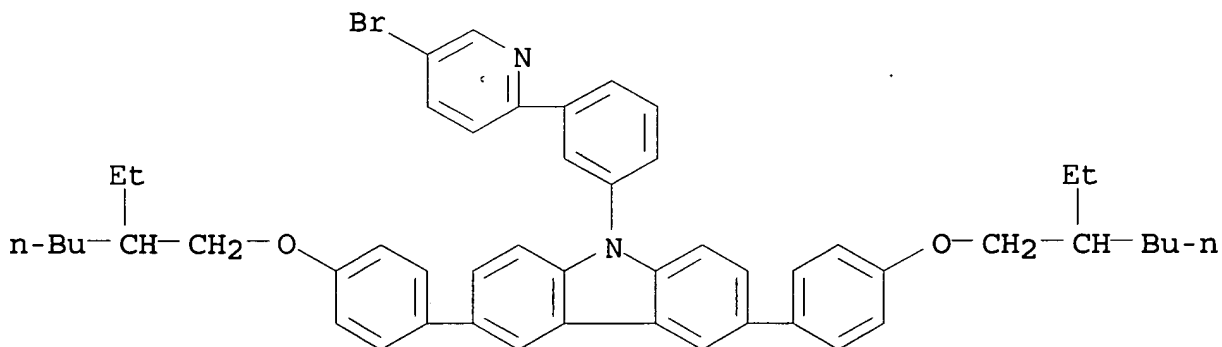
RN 668438-54-8 HCA

CN 9H-Carbazole, 3,6-bis[4-[(2-ethylhexyl)oxy]phenyl]-9-[3-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl]- (9CI) (CA INDEX NAME)



RN 668438-56-0 HCA

CN 9H-Carbazole, 9-[3-(5-bromo-2-pyridinyl)phenyl]-3,6-bis[4-[(2-ethylhexyl)oxy]phenyl]- (9CI) (CA INDEX NAME)



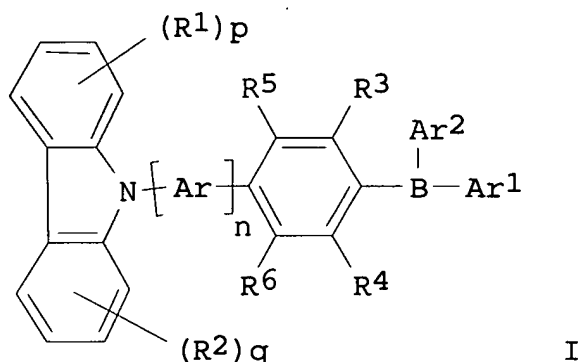
IC ICM C07F015-00

CC 29-13 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 73

ST neutral iridium metallic dendrimer prepn **light emitting** electro optics

- IT Optics  
(electrooptics; prepn. of neutral **iridium** dendrimer **complexes** and their use as **light-emitting** devices)
- IT Luminescence  
(prepn. of neutral **iridium** dendrimer **complexes** and their use as **light-emitting** devices)
- IT Dendritic polymers  
(prepn. of neutral **iridium** dendrimer **complexes** and their use as **light-emitting** devices)
- IT **668438-42-4P 668438-50-4P**  
(prepn. of neutral **iridium** dendrimer **complexes** and their use as **light-emitting** devices)
- IT 591-18-4, 1-Bromo-3-iodobenzene 624-28-2, 2,5-Dibromopyridine 6825-20-3, 3,6-Dibromocarbazole 13569-57-8, Iridium trichloride trihydrate **15635-87-7**, Tris(acetylacetonato)iridium 18523-22-3 56990-02-4, 3,5-Dibromobenzaldehyde 58530-53-3, 2,4-Dibromopyridine **61676-62-8 89598-96-9**, 3-Bromophenylboronic acid 115754-62-6 **452369-36-7 452914-03-3**  
(prepn. of neutral **iridium** dendrimer **complexes** and their use as **light-emitting** devices)
- IT 26031-67-4P 453530-47-7P 668438-32-2P 668438-34-4P 668438-36-6P 668438-38-8P 668438-40-2P 668438-44-6P **668438-46-8P 668438-48-0P 668438-52-6P 668438-54-8P 668438-56-0P**  
(prepn. of neutral **iridium** dendrimer **complexes** and their use as **light-emitting** devices)
- L57 ANSWER 5 OF 17 HCA COPYRIGHT 2005 ACS on STN  
140:102115 Organic **electroluminescent** devices and displays having high luminescence intensity and long service life. Yamada, Taketoshi; Kita, Hiroshi (Konica Minolta Holdings Inc., Japan). Jpn. Kokai Tokkyo Koho JP 2004014440 A2 20040115, 35 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2002-169802 20020611.
- GI



AB The devices contain N-carbazolyl group-contg. triarylboranes I (R1, R2 = substituent; R3-R6 = H, substituent; R3 and/or R4 are substituents; Ar = arylene; Ar1, Ar2 = aryl; n = 0-8; p = 1-4; q = 1-4) in electron-transport layers or emitter layers.

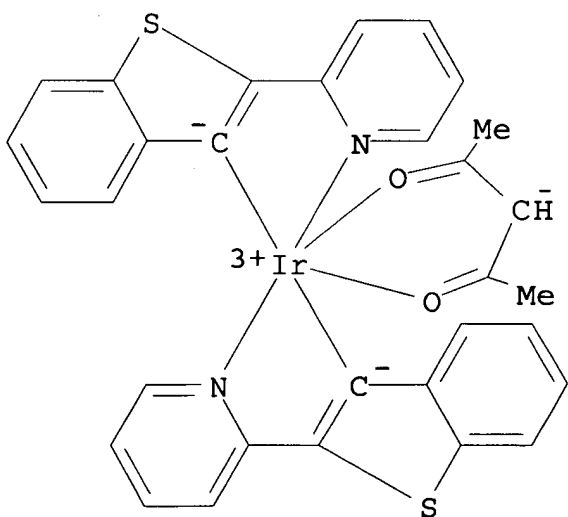
IT 343978-79-0 344426-19-3 387859-70-3

643758-24-1

(dopant in emitter layer; org. **electroluminescent** devices and displays contg. N-carbazolyl group-contg. triarylboranes)

RN 343978-79-0 HCA

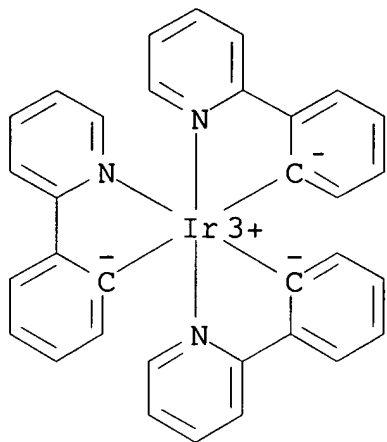
CN Iridium, (2,4-pentanedionato-.kappa.O,.kappa.O')bis[2-(2-pyridinyl-.kappa.N)benzo[b]thien-3-yl-.kappa.C]-, (OC-6-33)-(9CI) (CA INDEX NAME)



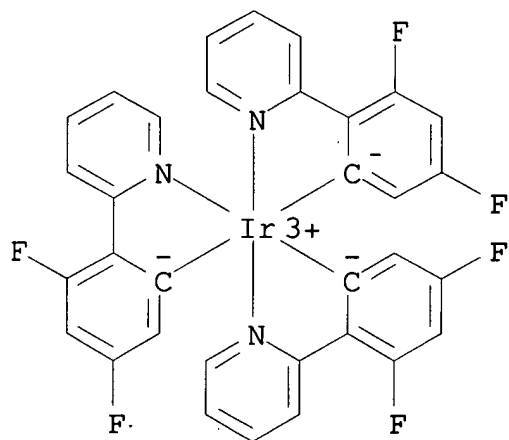
RN 344426-19-3 HCA

CN Iridium, tris[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]-, (OC-6-21)-

(9CI) (CA INDEX NAME)



RN 387859-70-3 HCA

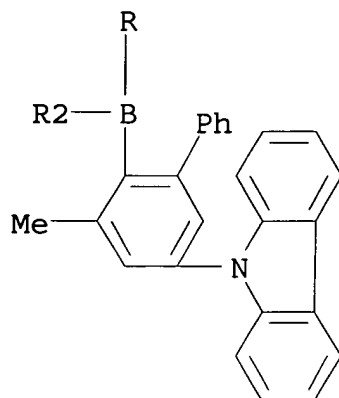
CN Iridium, tris[3,5-difluoro-2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C] -  
(9CI) (CA INDEX NAME)

RN 643758-24-1 HCA

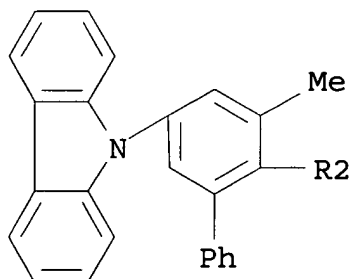
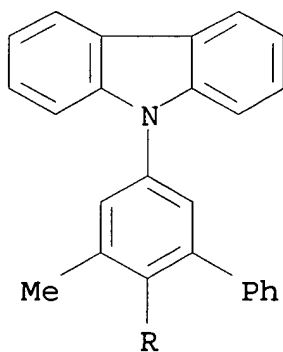
CN 9H-Carbazole, 9,9',9''-[borylidynetris(3-methyl[1,1'-biphenyl]-2,5-  
diyl)]tris- (9CI) (CA INDEX NAME)



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IT 643758-09-2 643758-10-5 643758-11-6  
 643758-12-7 643758-13-8 643758-14-9  
 643758-15-0 643758-16-1 643758-17-2  
 643758-18-3 643758-19-4 643758-20-7

643758-21-8 643758-22-9 643758-23-0

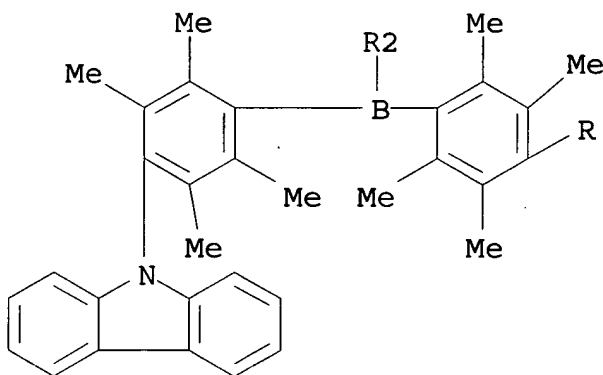
(org. **electroluminescent** devices and displays contg.

N-carbazolyl group-contg. triarylboranes)

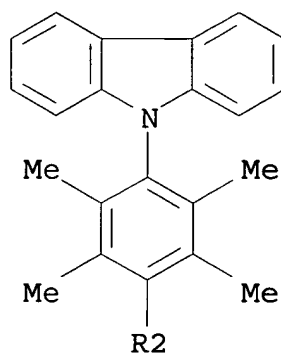
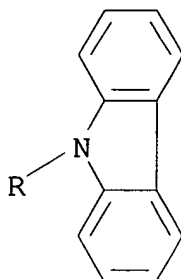
RN 643758-09-2 HCA

CN 9H-Carbazole, 9,9',9''-[borylidynetris(2,3,5,6-tetramethyl-4,1-phenylene)]tris- (9CI) (CA INDEX NAME)

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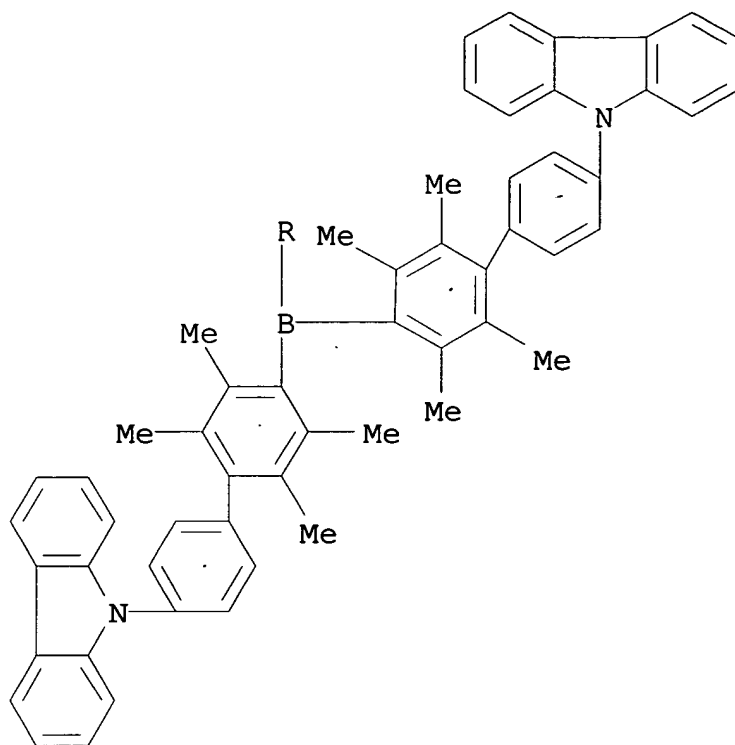
PAGE 2-A



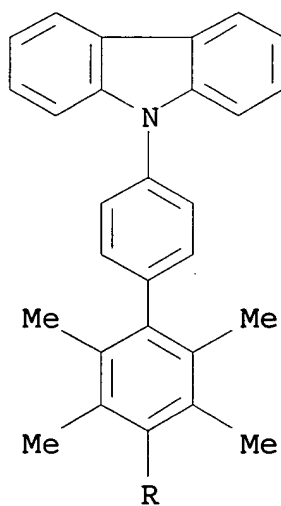
RN 643758-10-5 HCA

CN 9H-Carbazole, 9,9',9''-[borylidynetris(2',3',5',6'-tetramethyl[1,1'-biphenyl]-4',4'-diyl)]tris- (9CI) (CA INDEX NAME)

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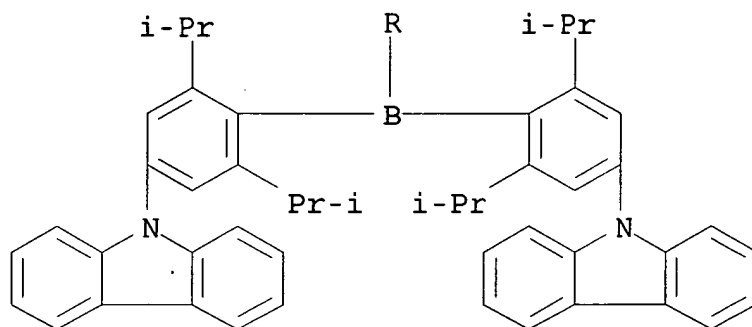


PAGE 2-A

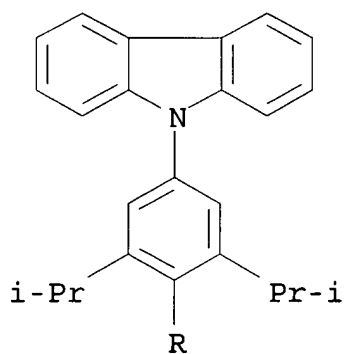


CN 9H-Carbazole, 9,9',9''-[borylidynetris[3,5-bis(1-methylethyl)-4,1-phenylene]]tris- (9CI) (CA INDEX NAME)

PAGE 1-A

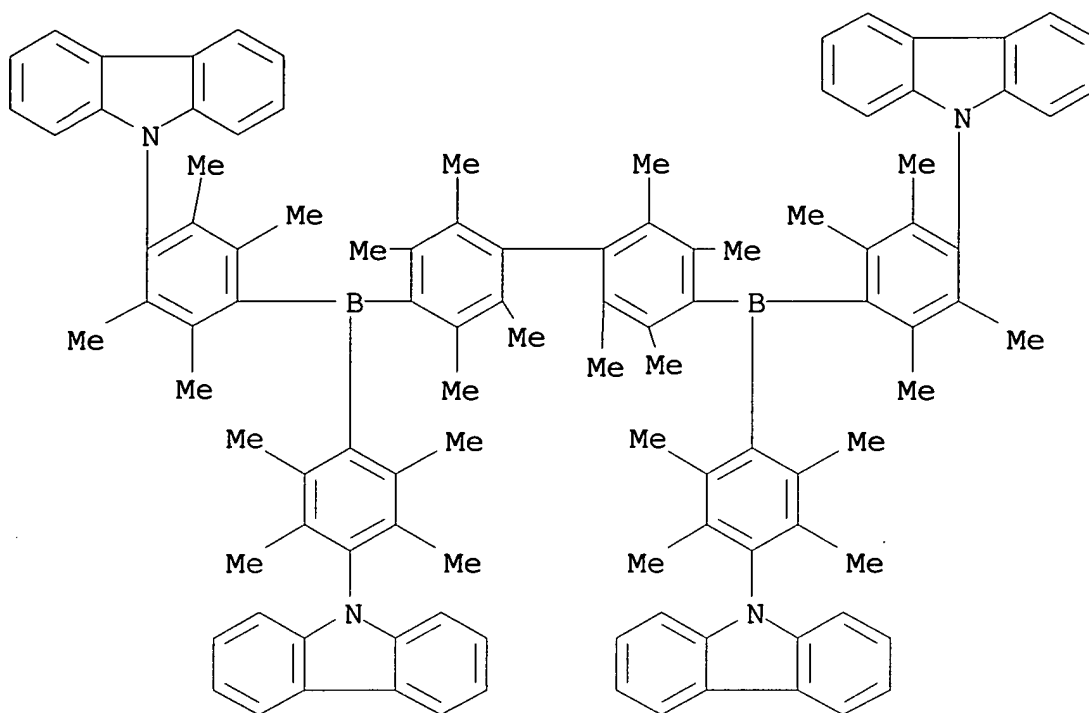


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RN 643758-12-7 HCA

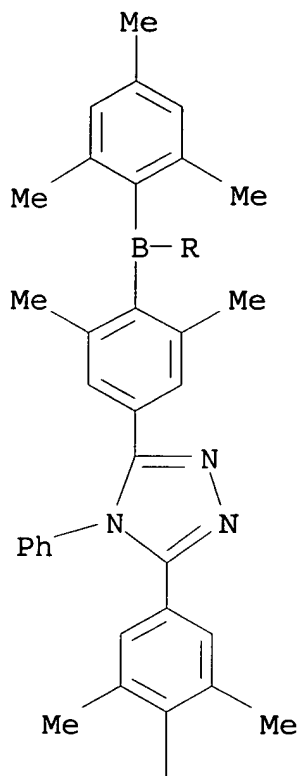
CN 9H-Carbazole, 9,9',9'',9'''-[(2,2',3,3',5,5',6,6'-octamethyl[1,1'-biphenyl]-4,4'-diyl)bis[borylidynebis(2,3,5,6-tetramethyl-4,1-phenylene)]]tetrakis- (9CI) (CA INDEX NAME)



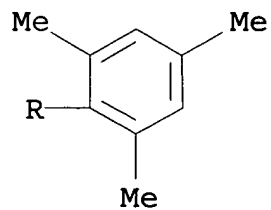
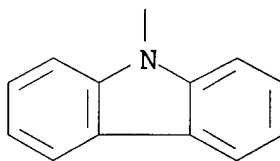
RN 643758-13-8 HCA

CN 9H-Carbazole, 9-[4-[5-[4-[bis(2,4,6-trimethylphenyl)boryl]-3,5-dimethylphenyl]-4-phenyl-4H-1,2,4-triazol-3-yl]-2,6-dimethylphenyl]-(9CI) (CA INDEX NAME)

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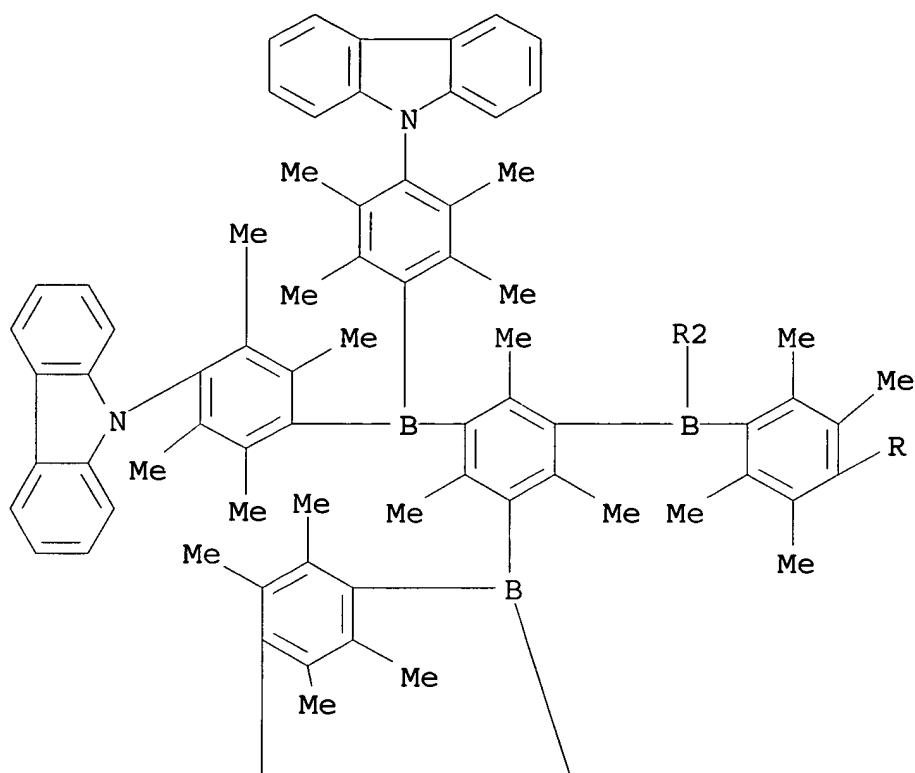
PAGE 2-A



RN 643758-14-9 HCA  
CN 9H-Carbazole, 9,9',9'',9''',9'''',9'''''-[(2,4,6-trimethyl-1,3,5-

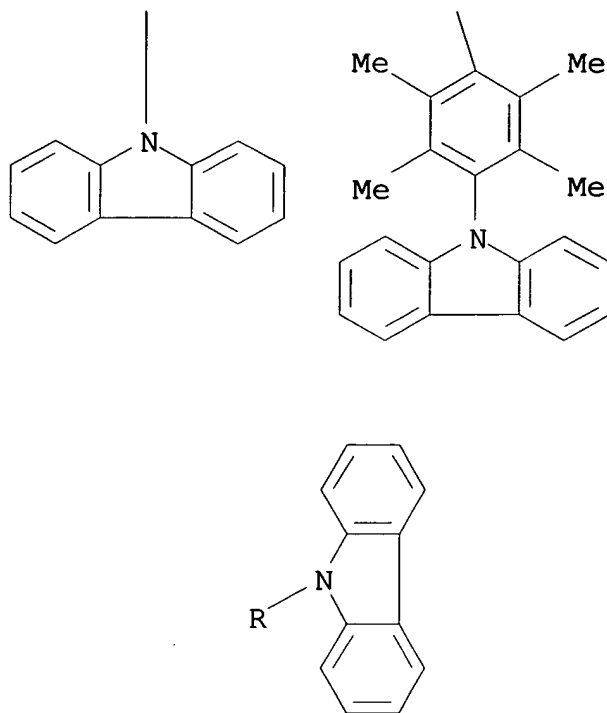
benzenetriyl)tris[borylidynebis(2,3,5,6-tetramethyl-4,1-phenylene)]hexakis- (9CI) (CA INDEX NAME)

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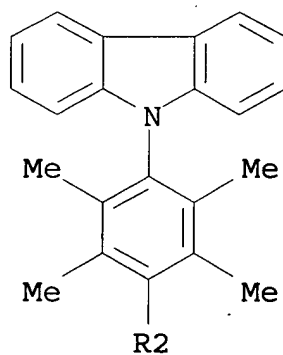




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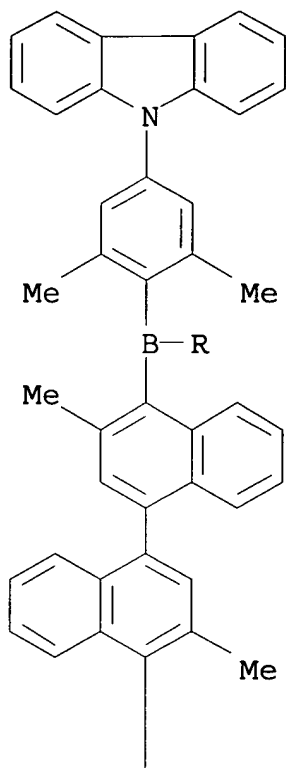


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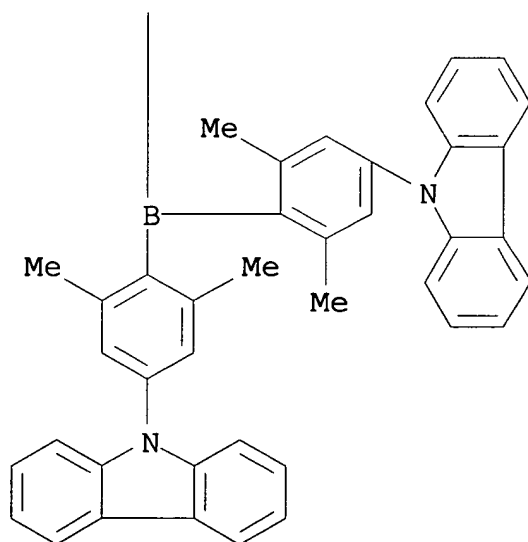


RN 643758-15-0 HCA  
 CN 9H-Carbazole, 9,9',9'',9'''-[(3,3'-dimethyl[1,1'-binaphthalene]-4,4'-diyl)bis[borylidynebis(3,5-dimethyl-4,1-phenylene)]]tetrakis- (9CI)  
 (CA INDEX NAME)

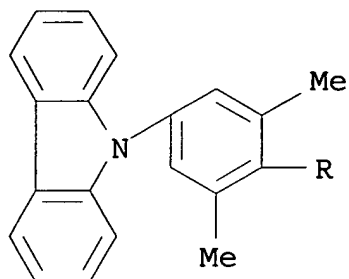
PAGE 1-A



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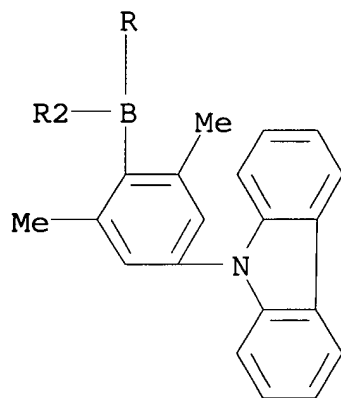


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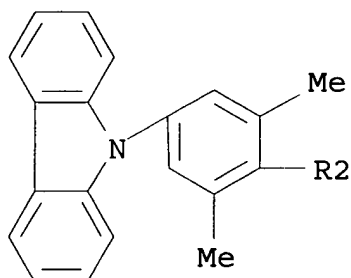
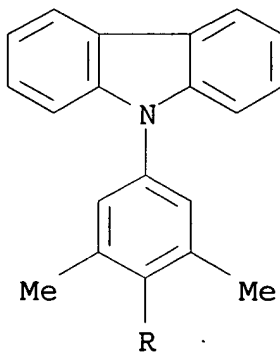


RN 643758-16-1 HCA  
 CN 9H-Carbazole, 9,9',9''-[borylidynetris(3,5-dimethyl-4,1-phenylene)]tris- (9CI) (CA INDEX NAME)

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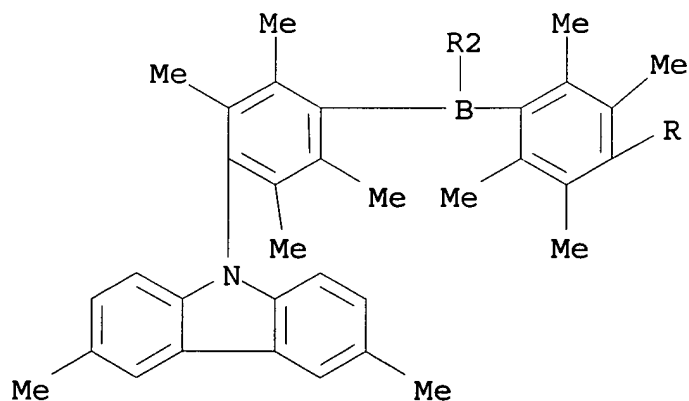


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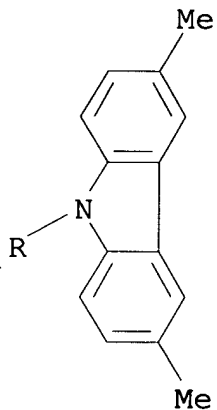


RN 643758-17-2 HCA  
 CN 9H-Carbazole, 9,9',9'''-[borylidynetris(2,3,5,6-tetramethyl-4,1-phenylene)]tris[3,6-dimethyl- (9CI) (CA INDEX NAME)

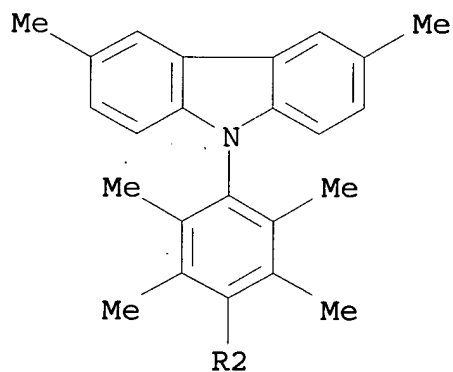
PAGE 1-A



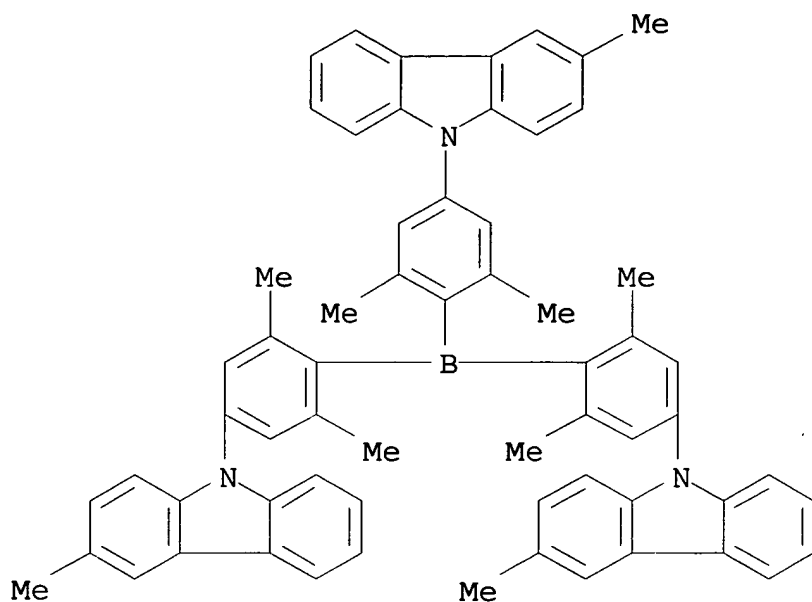
PAGE 2-A



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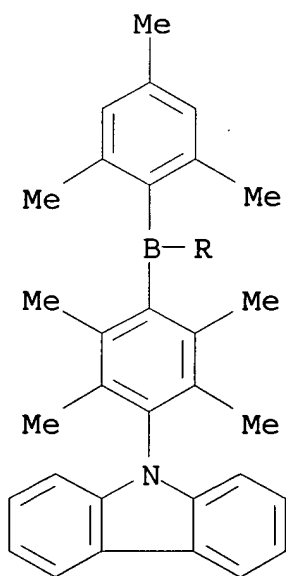
RN	643758-18-3	HCA
CN	9H-Carbazole, 9,9',9''-[borylidynetris(3,5-dimethyl-4,1-phenylene)]tris[3-methyl- (9CI) (CA INDEX NAME)	



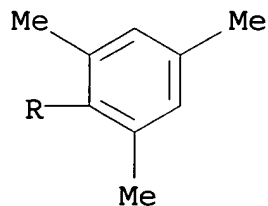
RN 643758-19-4 HCA

CN 9H-Carbazole, 9-[4-[bis(2,4,6-trimethylphenyl)boryl]-2,3,5,6-tetramethylphenyl]- (9CI) (CA INDEX NAME)

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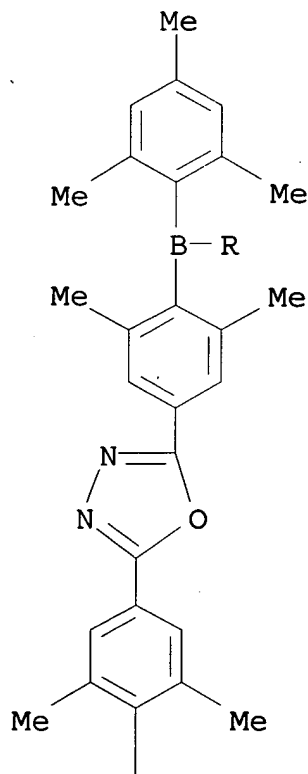


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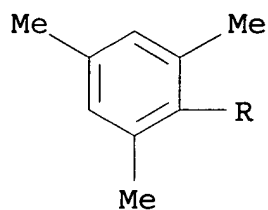
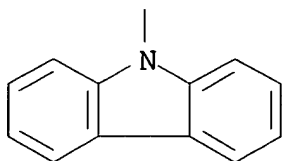


RN 643758-20-7 HCA  
 CN 9H-Carbazole, 9-[4-[5-[4-[bis(2,4,6-trimethylphenyl)boryl]-3,5-dimethylphenyl]-1,3,4-oxadiazol-2-yl]-2,6-dimethylphenyl]- (9CI)  
 (CA INDEX NAME)

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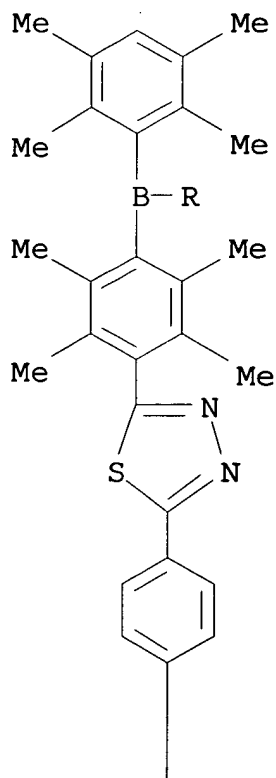


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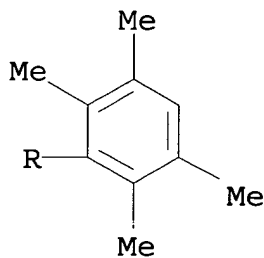
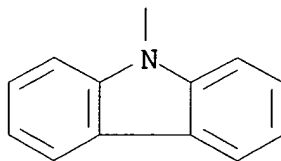
RN 643758-21-8 HCA  
 CN 9H-Carbazole, 9-[4-[5-[4-[bis(2,3,5,6-tetramethylphenyl)boryl]-2,3,5,6-tetramethylphenyl]-1,3,4-thiadiazol-2-yl]phenyl]- (9CI) (CA INDEX NAME)

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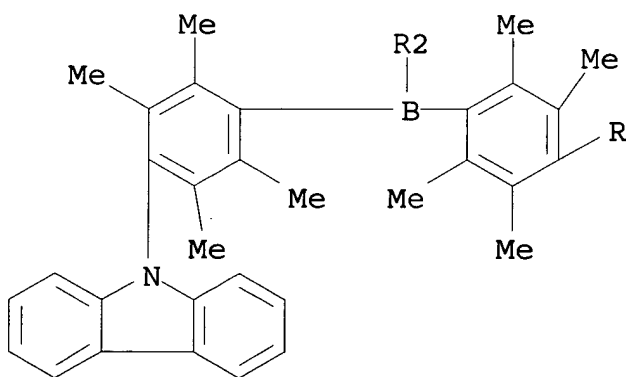


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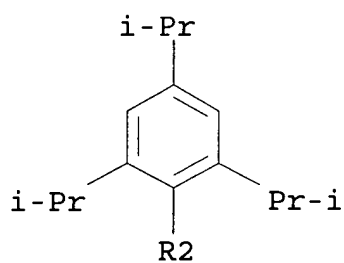
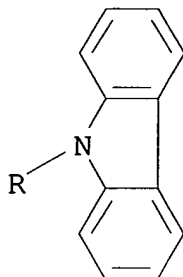


RN 643758-22-9 HCA  
 CN 9H-Carbazole, 9,9'-[[[2,4,6-tris(1-methylethyl)phenyl]borylene]bis(2,3,5,6-tetramethyl-4,1-phenylene)]bis- (9CI) (CA INDEX NAME)

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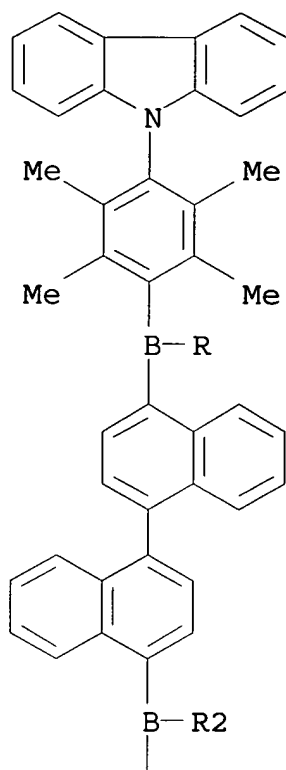


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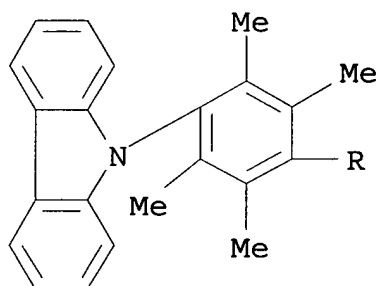
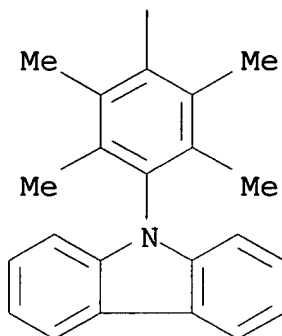


RN 643758-23-0 HCA  
 CN 9H-Carbazole, 9,9',9'',9'''-[[[1,1'-binaphthalene]-4,4'-  
 diylbis[borylidynebis(2,3,5,6-tetramethyl-4,1-phenylene)]]tetrakis-  
 (9CI) (CA INDEX NAME)

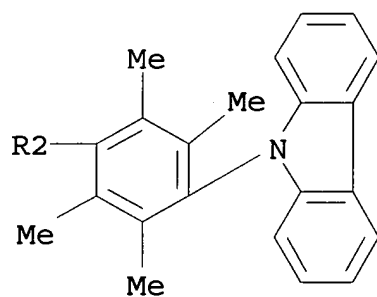
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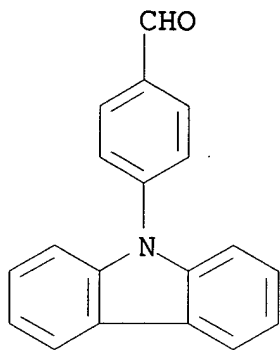
IC ICM H05B033-22  
 ICS C09K011-06; H05B033-14  
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and  
 Other Reprographic Processes)  
 Section cross-reference(s): 73  
 ST carbazoyl arylborane electron transport **electroluminescent**  
 device; emitter iridium carbazoyl arylborane  
**electroluminescent** display

- IT **Electroluminescent** devices  
(displays; org. **electroluminescent** devices and displays  
contg. N-carbazolyl group-contg. triarylboranes)
- IT **Luminescent** screens  
(**electroluminescent**; org.  
**electroluminescent** devices and displays contg.  
N-carbazolyl group-contg. triarylboranes)
- IT 343978-79-0 344426-19-3 387859-70-3  
643758-24-1  
(dopant in emitter layer; org. **electroluminescent**  
devices and displays contg. N-carbazolyl group-contg.  
triarylboranes)
- IT 7440-04-2D, Osmium, compds. 7440-06-4D, Platinum, compds.  
(dopants in emitter layers; org. **electroluminescent**  
devices and displays contg. N-carbazolyl group-contg.  
triarylboranes)
- IT 643758-09-2 643758-10-5 643758-11-6  
643758-12-7 643758-13-8 643758-14-9  
643758-15-0 643758-16-1 643758-17-2  
643758-18-3 643758-19-4 643758-20-7  
643758-21-8 643758-22-9 643758-23-0  
(org. **electroluminescent** devices and displays contg.  
N-carbazolyl group-contg. triarylboranes)
- L57 ANSWER 6 OF 17 HCA COPYRIGHT 2005 ACS on STN  
140:95573 Charge transport compositions and electronic devices made with  
such compositions. Herron, Norman; Radu, Nora S.; Smith, Eric  
Maurice; Wang, Ying (E. I. Du Pont de Nemours & Co., USA). PCT Int.  
Appl. WO 2004005406 A2 20040115, 46 pp. DESIGNATED STATES: W: AE,  
AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR,  
CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU,  
ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV,  
MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO,  
RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ,  
VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ; RW: AT, BE,  
BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE,  
IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English).  
CODEN: PIXXD2. APPLICATION: WO 2003-US21612 20030709. PRIORITY: US  
2002-2002/PV39476U 20020710; US 2003-2003/PV458277 20030328.
- AB The present invention relates to photoactive charge transport  
compns. contg. triarylmethane compds. XZCH(ZNR<sub>2</sub>)<sub>2</sub> where R = H, org.  
group (R<sub>2</sub>N may form a heterocycle); X = org. group, halogen, NO<sub>2</sub>,  
OH; Z = arylene, heteroarylene. The compds. may be used to prep.  
org. **light-emitting** devices (OLEDs) with  
improved characteristics. In an example, N,N-diethyl-m-toluidine  
was condensed with p-fluorobenzaldehyde to give p-FC6F4CH(o-Me-p-  
NEt<sub>2</sub>C6H<sub>3</sub>), which showed **OLED** utility.
- IT 110677-45-7P

(intermediate; prepn. of triarylmethane-based photoactive charge-transport compds. for LED applications)

RN 110677-45-7 HCA

CN Benzaldehyde, 4-(9H-carbazol-9-yl)- (9CI) (CA INDEX NAME)

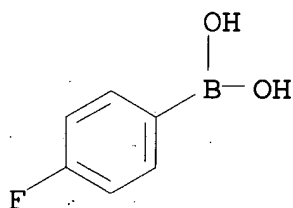


IT 1765-93-1, 4-Fluorophenylboronic acid 87199-17-5,  
4-Formylphenylboronic acid

(starting material; prepn. of triarylmethane-based photoactive charge-transport compds. for LED applications)

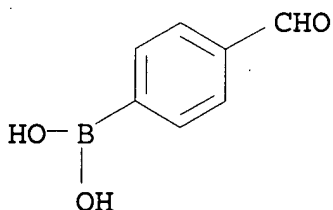
RN 1765-93-1 HCA

CN Boronic acid, (4-fluorophenyl)- (9CI) (CA INDEX NAME)



RN 87199-17-5 HCA

CN Boronic acid, (4-formylphenyl)- (9CI) (CA INDEX NAME)



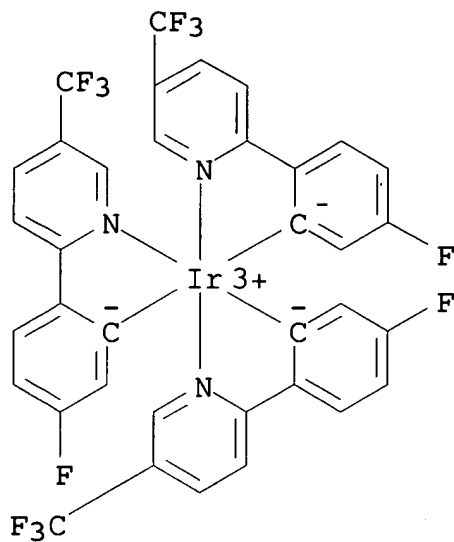
IT 364067-15-2P 645401-12-3P

(triarylmethane-based photoactive charge-transport compds. for LED applications)

RN 364067-15-2 HCA

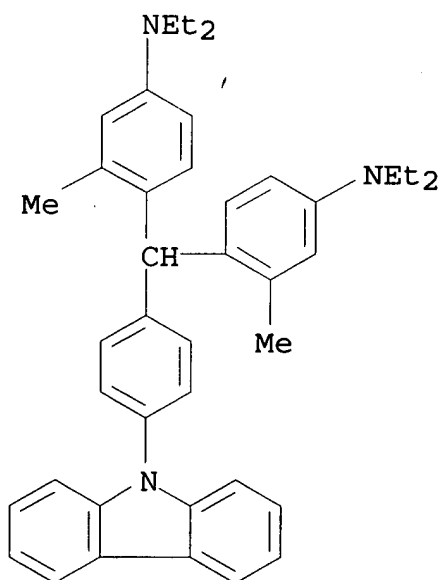
CN Iridium, tris[5-fluoro-2-[5-(trifluoromethyl)-2-pyridinyl]-

.kappa.N]phenyl-.kappa.C]-, (OC-6-22) - (9CI) (CA INDEX NAME)



RN 645401-12-3 HCA

CN Benzenamine, 4,4'-[[4-(9H-carbazol-9-yl)phenyl]methylene]bis[N,N-diethyl-3-methyl- (9CI) (CA INDEX NAME)



IC ICM C09B011-00

ICS C09K011-06

CC 41-8 (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic Sensitizers)

Section cross-reference(s): 25, 76, 78

- IT Chemicals  
(photoactive; prepn. of triarylmethane-based photoactive charge-transport compds. for **LED** applications)
- IT **Electroluminescent** devices  
(prepn. of triarylmethane-based photoactive charge-transport compds. for **LED** applications)
- IT Dyes  
(triarylmethane; prepn. of triarylmethane-based photoactive charge-transport compds. for **LED** applications)
- IT **110677-45-7P** 119001-43-3P 290829-75-3P 370878-58-3P 645401-15-6P  
(intermediate; prepn. of triarylmethane-based photoactive charge-transport compds. for **LED** applications)
- IT 68-12-2, DMF, reactions 74-31-7, N,N'-Diphenyl-p-phenylenediamine 86-74-8, Carbazole 91-67-8, N,N-Diethyl-m-toluidine 104-87-0, p-Tolualdehyde 459-57-4, p-Fluorobenzaldehyde 626-19-7, Isophthalaldehyde 626-39-1, 1,3,5-Tribromobenzene 1122-91-4, p-Bromobenzaldehyde **1765-93-1**, 4-Fluorophenylboronic acid 4181-05-9, p-(Diphenylamino)benzaldehyde 4316-58-9, Tris(4-bromophenyl)amine 4885-02-3, Dichloromethyl methyl ether 5459-79-0 14996-61-3, Iridium trichloride hydrate 16004-75-4, 1,3,5,7-Tetraphenyladamantane 19955-99-8, 3-Vinylbenzaldehyde 52334-81-3, 2-Chloro-5-(trifluoromethyl)pyridine 56990-02-4, 3,5-Dibromobenzaldehyde **87199-17-5**, 4-Formylphenylboronic acid  
(starting material; prepn. of triarylmethane-based photoactive charge-transport compds. for **LED** applications)
- IT 15008-36-3P 36217-56-8P 40660-35-3P 40660-36-4P 40660-48-8P 68582-43-4P 68582-44-5P 81332-43-6P **364067-15-2P**  
645400-95-9P 645400-96-0P 645400-97-1P 645400-98-2P  
645400-99-3P 645401-00-9P 645401-01-0P 645401-02-1P  
645401-03-2P 645401-04-3P 645401-07-6P 645401-08-7P  
645401-09-8P 645401-10-1P 645401-11-2P **645401-12-3P**  
645401-13-4P 645401-14-5P  
(triarylmethane-based photoactive charge-transport compds. for **LED** applications)
- IT 645401-05-4 645401-06-5  
(triarylmethane-based photoactive charge-transport compds. for **LED** applications)

L57 ANSWER 7 OF 17 HCA COPYRIGHT 2005 ACS on STN

139:283130 Phosphorescent dendrimers for use in **light-emitting** devices. Lo, Shih-chun; Burn, Paul Leslie; Samuel, Ifor David William; Anthopoulos, Thomas Dimitrios (Isis Innovation Limited, UK; The University Court of the University of St. Andrews).  
PCT Int. Appl. WO 2003079736 A1 20030925, 60 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE,



GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2003-GB1132 20030318. PRIORITY: GB 2002-6356 20020318; GB 2002-20091 20020829; GB 2002-20092 20020829.

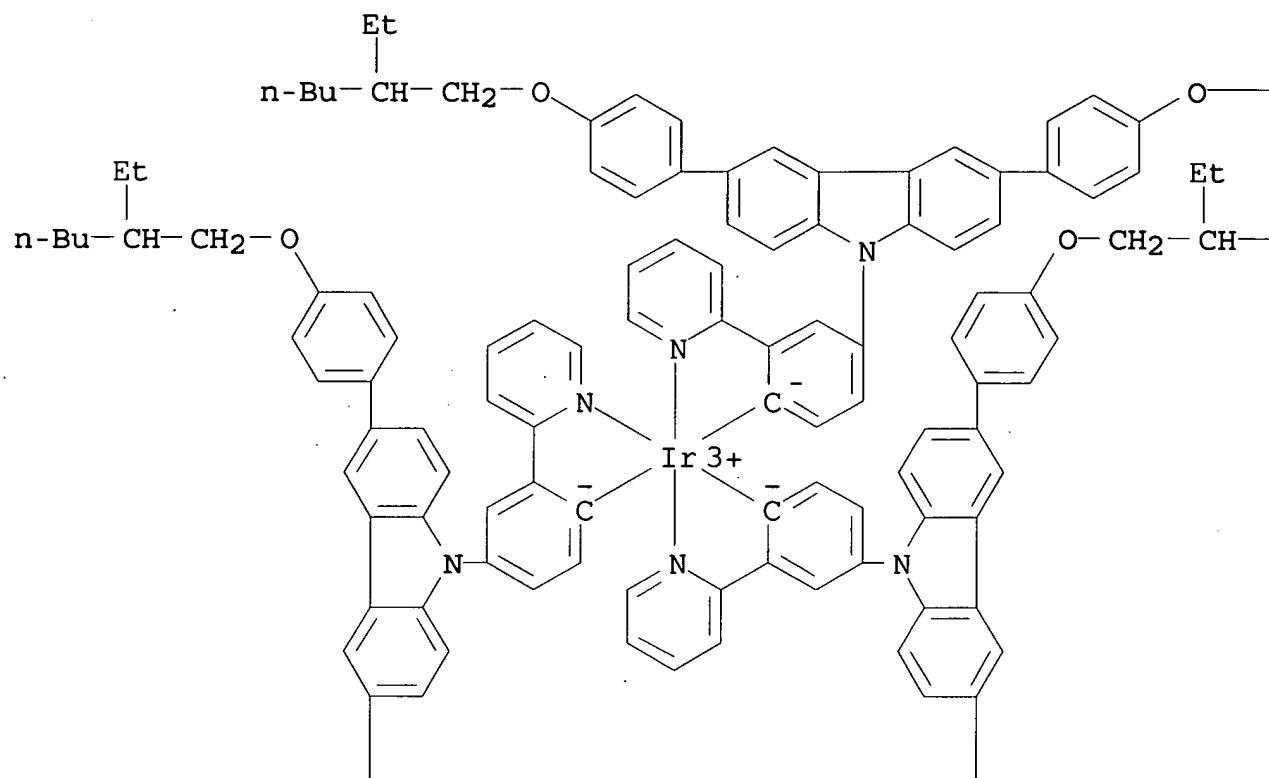
AB A **light emitting** device which comprises at least one layer that contains a phosphorescent organometallic dendrimer with a metal cation and .gtoreq.2 coordinating groups as part of its core and wherein at least 2 of said coordinating groups each have a dendron attached, at least one of which dendrons comprises at least one N atom which forms part of an arom. ring system or is directly bonded to at least 2 arom. groups.

IT **606932-48-3P 606932-53-0P**  
(phosphorescent dendrimers for use in **light-emitting** devices)

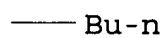
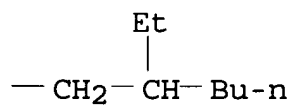
RN 606932-48-3 HCA

CN Iridium, tris[4-[3,6-bis[4-[(2-ethylhexyl)oxy]phenyl]-9H-carbazol-9-yl]-2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]-, (OC-6-22)-(9CI) (CA INDEX NAME)

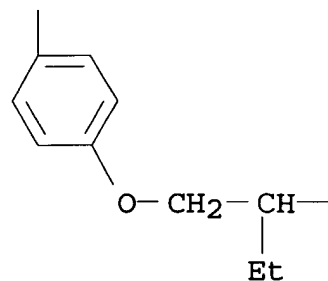
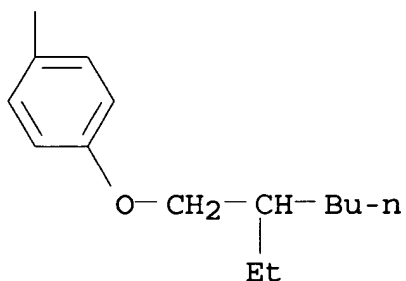
PAGE 1-A



PAGE 1-B



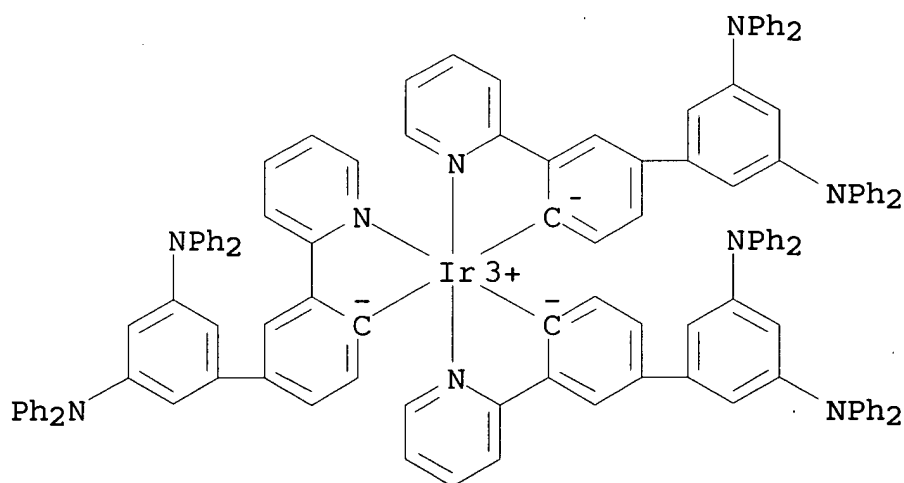
PAGE 2-A



PAGE 2-B

— Bu-n

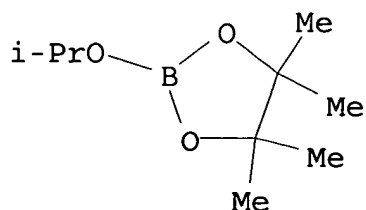
RN 606932-53-0 HCA  
 CN Iridium, tris[3',5'-bis(diphenylamino)-3-(2-pyridinyl-.kappa.N) [1,1'-biphenyl]-4-yl-.kappa.C]-, (OC-6-22)- (9CI) (CA INDEX NAME)



IT 61676-62-8, 2-Isopropoxy-4,4,5,5-tetramethyl-1,3,2-dioxaborolane  
 (phosphorescent dendrimers for use in light-emitting devices)

RN 61676-62-8 HCA

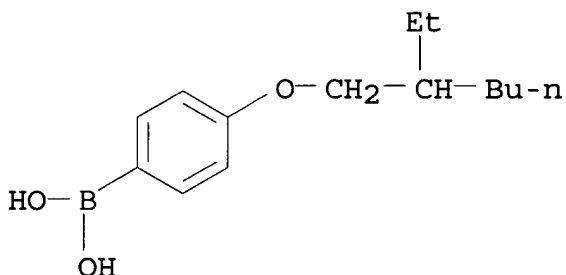
CN 1,3,2-Dioxaborolane, 4,4,5,5-tetramethyl-2-(1-methylethoxy) - (9CI)  
(CA INDEX NAME)



IT 452369-36-7P 453530-49-9P 606932-37-0P  
606932-39-2P 606932-41-6P 606932-45-0P  
606932-46-1P 606932-49-4P 606932-52-9P  
(phosphorescent dendrimers for use in **light-emitting** devices)

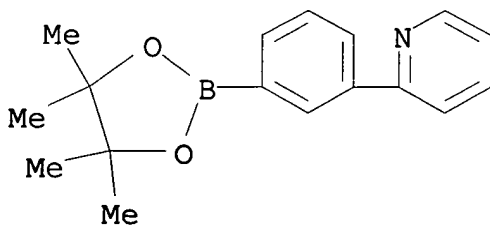
RN 452369-36-7 HCA

CN Boronic acid, [4-[(2-ethylhexyl)oxy]phenyl] - (9CI) (CA INDEX NAME)



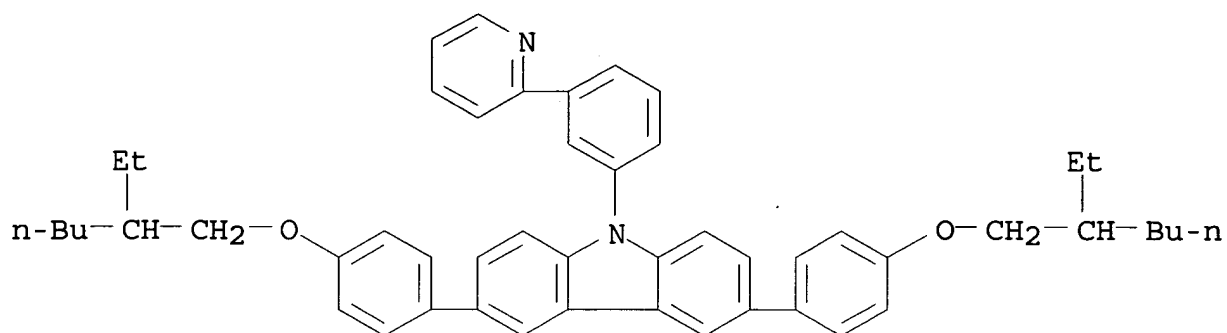
RN 453530-49-9 HCA

CN Pyridine, 2-[3-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl] - (9CI) (CA INDEX NAME)



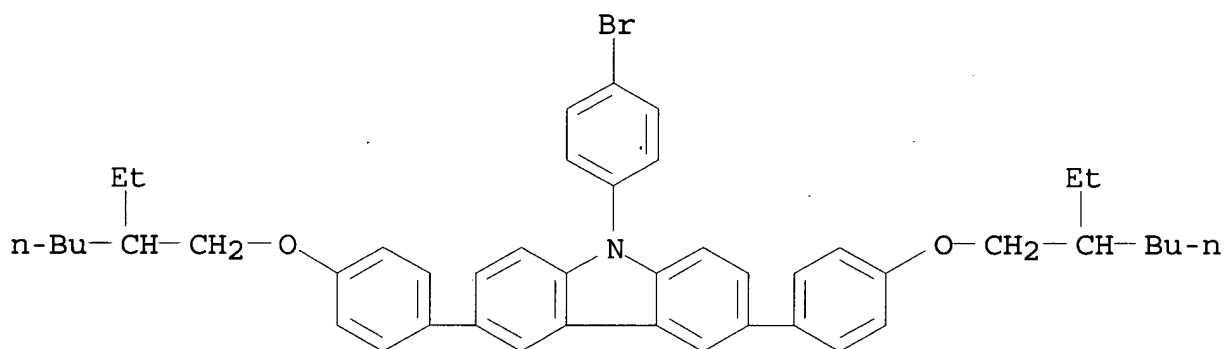
RN 606932-37-0 HCA

CN 9H-Carbazole, 3,6-bis[4-[(2-ethylhexyl)oxy]phenyl]-9-[3-(2-pyridinyl)phenyl] - (9CI) (CA INDEX NAME)



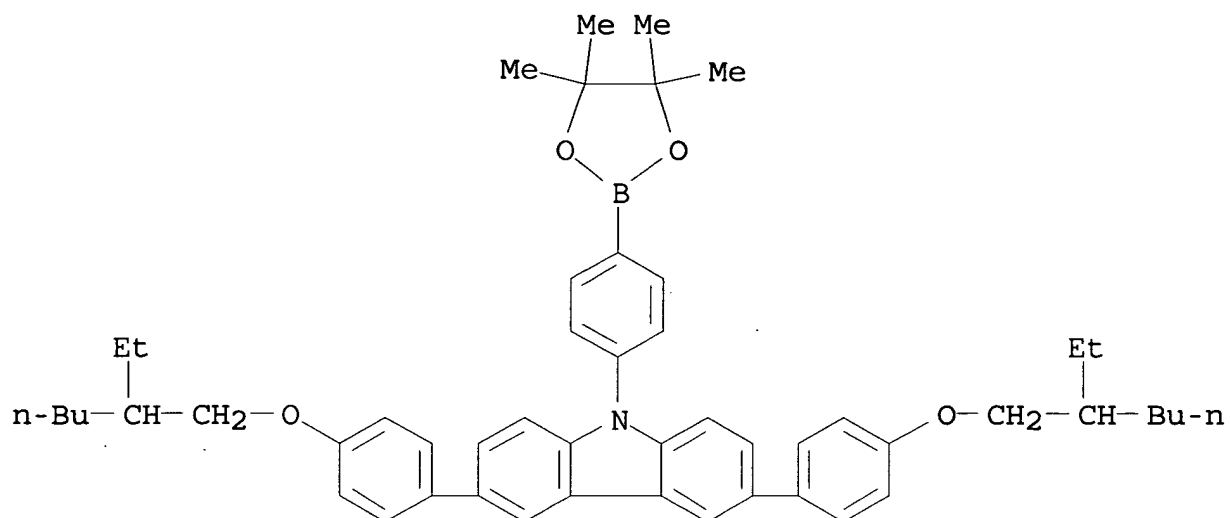
RN 606932-39-2 HCA

CN 9H-Carbazole, 9-(4-bromophenyl)-3,6-bis[4-[(2-ethylhexyl)oxy]phenyl]-  
(9CI) (CA INDEX NAME)



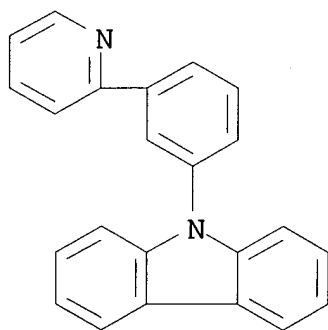
RN 606932-41-6 HCA

CN 9H-Carbazole, 3,6-bis[4-[(2-ethylhexyl)oxy]phenyl]-9-[4-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl]- (9CI) (CA INDEX NAME)



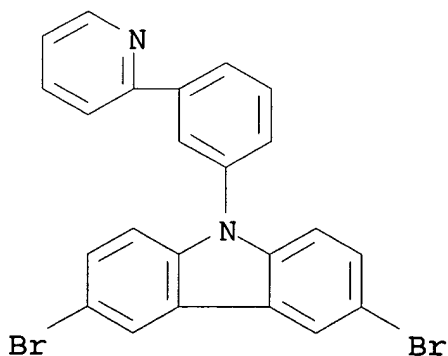
RN 606932-45-0 HCA

CN 9H-Carbazole, 9-[3-(2-pyridinyl)phenyl]- (9CI) (CA INDEX NAME)



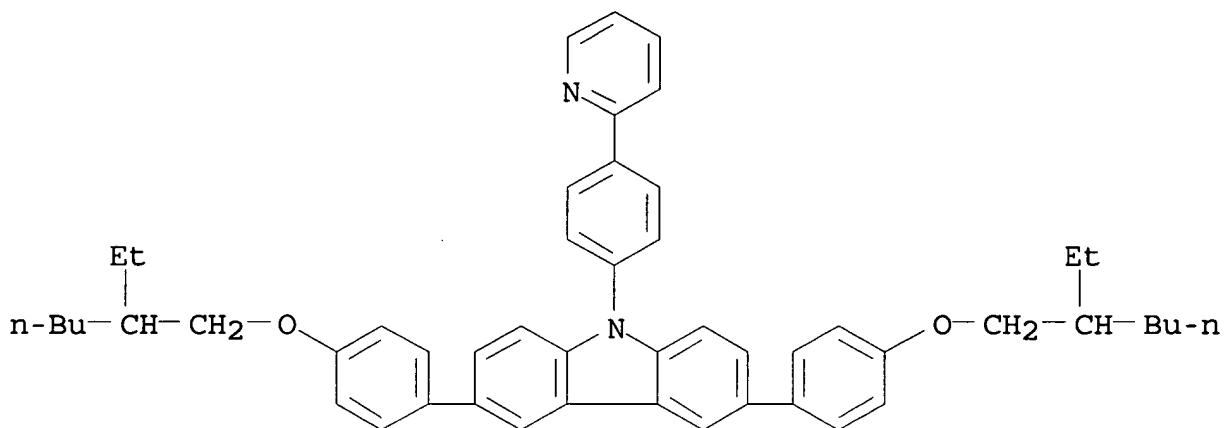
RN 606932-46-1 HCA

CN 9H-Carbazole, 3,6-dibromo-9-[3-(2-pyridinyl)phenyl]- (9CI) (CA INDEX NAME)



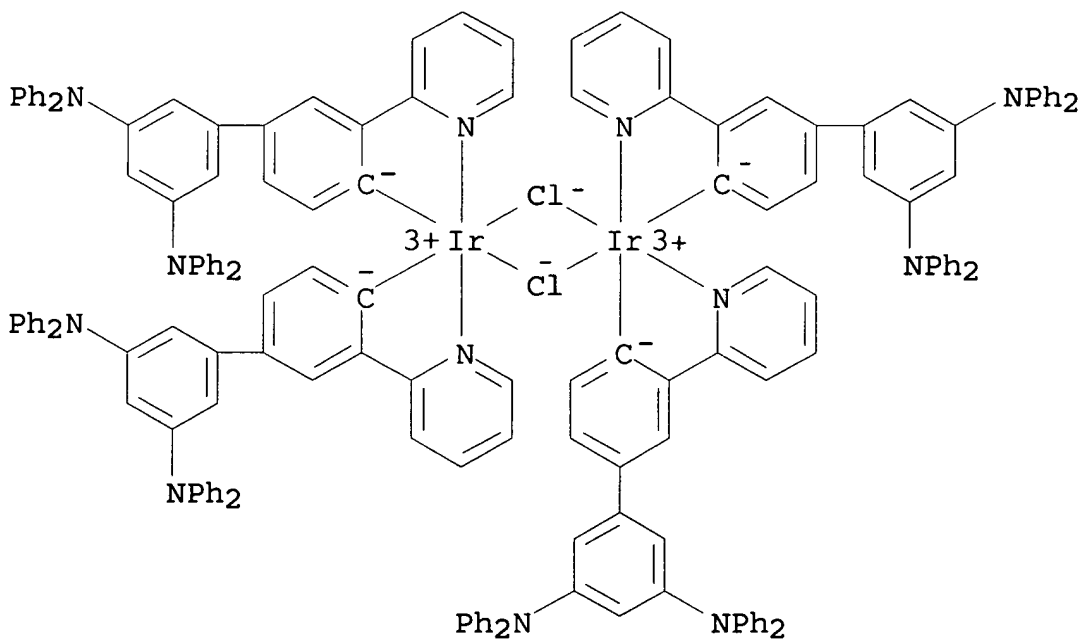
RN 606932-49-4 HCA

CN 9H-Carbazole, 3,6-bis[4-[(2-ethylhexyl)oxy]phenyl]-9-[4-(2-pyridinyl)phenyl]- (9CI) (CA INDEX NAME)



RN 606932-52-9 HCA

CN Iridium, tetrakis[3',5'-bis(diphenylamino)-3-(2-pyridinyl-.kappa.N)[1,1'-biphenyl]-4-yl-.kappa.C]di-.mu.-chlorodi-, stereoisomer (9CI) (CA INDEX NAME)



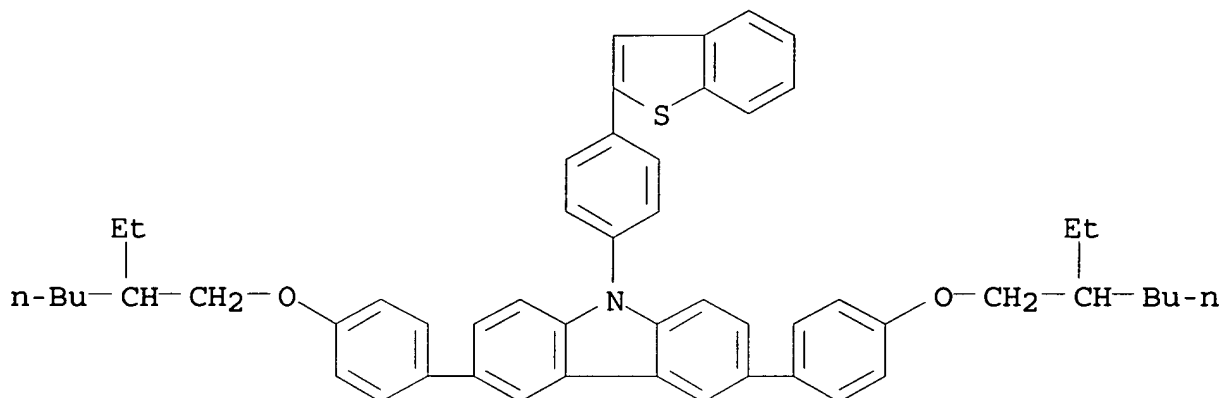
IT 606932-50-7P

(phosphorescent dendrimers for use in light-

**emitting devices)**

RN 606932-50-7 HCA

CN 9H-Carbazole, 9-(4-benzo[b]thien-2-ylphenyl)-3,6-bis[4-[(2-ethylhexyl)oxy]phenyl]- (9CI) (CA INDEX NAME)



IC ICM H05B033-14

ICS C09K011-06; H01L051-20; C07F015-00; H01L051-30

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 29

ST phosphorescent organometal dendrimer **light emitting device**

IT **Electroluminescent devices**

Phosphorescent substances

(phosphorescent dendrimers for use in **light-emitting devices**)

IT Organometallic compounds

(phosphorescent dendrimers for use in **light-emitting devices**)

IT Dendritic polymers

(phosphorescent dendrimers for use in **light-emitting devices**)

IT **606932-48-3P 606932-53-0P 606976-70-9P**

(phosphorescent dendrimers for use in **light-emitting devices**)

IT 86-74-8, Carbazole 106-37-6, 1,4-Dibromobenzene 106-41-2,

4-Bromophenol 121-43-7, Trimethylborate 128-08-5, NBS

589-87-7, 1-Bromo-4-iodobenzene 624-28-2, 2,5-Dibromopyridine

4373-60-8 6825-20-3, 3,6-Dibromocarbazole 13569-57-8

18908-66-2, 2-Ethylhexylbromide **61676-62-8**,

2-Isopropoxy-4,4,5,5-tetramethyl-1,3,2-dioxaborolane 63996-36-1

606932-38-1

(phosphorescent dendrimers for use in **light-emitting devices**)



IT 626-39-1P, 1,3,5-Tribromobenzene 164352-24-3P **452369-36-7P**  
453530-47-7P **453530-49-9P** 453530-50-2P  
**606932-37-0P 606932-39-2P 606932-41-6P**  
606932-42-7P 606932-44-9P **606932-45-0P**  
**606932-46-1P** 606932-47-2P **606932-49-4P**  
606932-51-8P **606932-52-9P**

(phosphorescent dendrimers for use in **light-emitting** devices)

IT **606932-50-7P**  
(phosphorescent dendrimers for use in **light-emitting** devices)

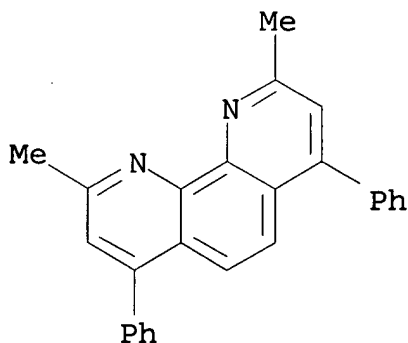
L57 ANSWER 8 OF 17 HCA COPYRIGHT 2005 ACS on STN  
139:204831 Organic **electroluminescent** devices with  
**light-emitting** layer contg. a phosphorescent  
compd. and a host **compd. containing** a  
**boron** atom in the molecule, and a display employing the  
organic **electroluminescent** devices. Matsuura, Mitsunori;  
Yamada, Taketoshi; Kinoshita, Motoi; Kita, Hiroshi (Konica  
Corporation, Japan). U.S. Pat. Appl. Publ. US 2003157366 A1  
20030821, 26 pp. (English). CODEN: USXXCO. APPLICATION: US  
2002-281572 20021028. PRIORITY: JP 2001-372601 20011206.

AB Org. **electroluminescent** devices and a display employing  
the org. **electroluminescent** devices are described which  
comprise a **light-emitting** layer contg. a  
phosphorescent compd. and a host **compd. contg. a**  
**boron** atom in the mol.

IT **4733-39-5**, Bathocuproine  
(electron-transporting and hole-blocking layer; org.  
**electroluminescent** devices with **light-**  
**emitting** layer contg. phosphorescent compd. and host  
**compd. contg. boron** atom in mol., and  
display employing **electroluminescent** devices)

RN 4733-39-5 HCA

CN 1,10-Phenanthroline, 2,9-dimethyl-4,7-diphenyl- (6CI, 7CI, 8CI, 9CI)  
(CA INDEX NAME)

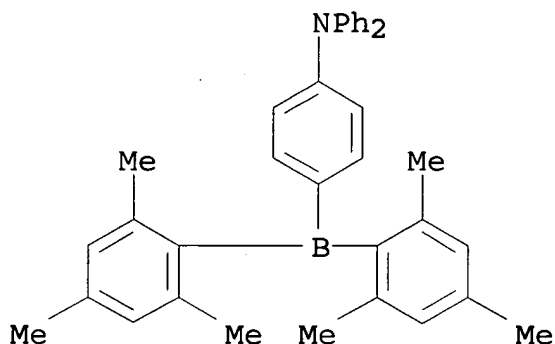


IT 38186-32-2 213621-16-0 300823-56-7  
 300823-57-8 301300-11-8 332350-52-4  
 332350-53-5 492434-53-4 492446-94-3  
 492446-97-6 492447-00-4 583040-29-3  
 583040-30-6 583040-31-7 583040-32-8  
 583040-33-9 583040-34-0 583040-35-1  
 583040-36-2 583040-37-3 583040-38-4  
 583040-39-5 583040-40-8 583040-41-9  
 583040-42-0

(host in light-emitting layer; org.  
 electroluminescent devices with light-  
 emitting layer contg. phosphorescent compd. and host  
 compd. contg. boron atom in mol., and  
 display employing electroluminescent devices)

RN 38186-32-2 HCA

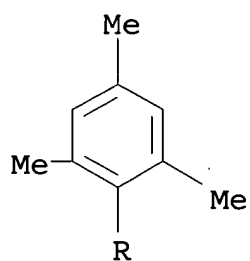
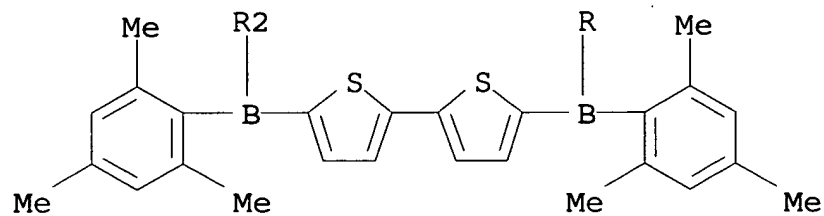
CN Benzenamine, 4-[bis(2,4,6-trimethylphenyl)boryl]-N,N-diphenyl- (9CI)  
 (CA INDEX NAME)



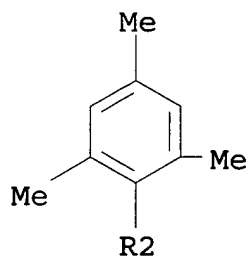
RN 213621-16-0 HCA

CN Borane, [2,2'-bithiophene]-5,5'-diylbis[bis(2,4,6-trimethylphenyl)-  
 (9CI) (CA INDEX NAME)

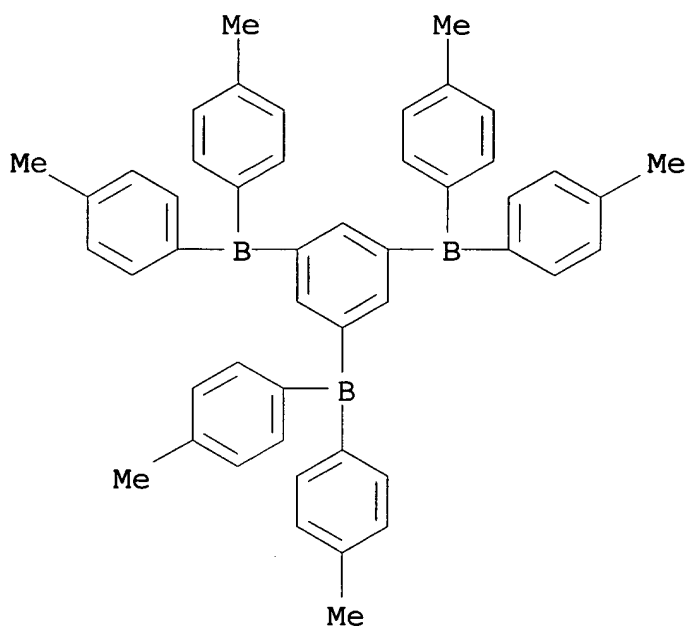
PAGE 1-A



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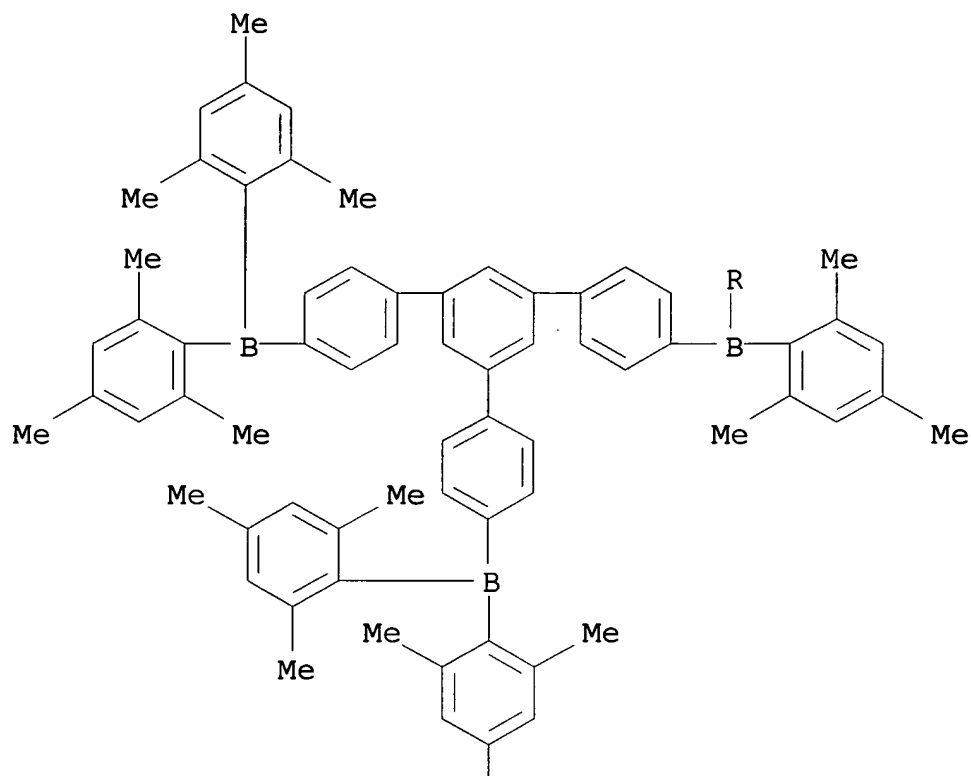


RN 300823-56-7 HCA  
 CN Borane, 1,3,5-benzenetriyltris[bis(4-methylphenyl) - (9CI) (CA INDEX NAME)

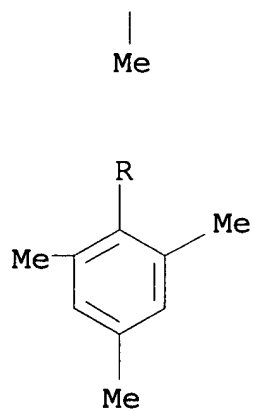


RN 300823-57-8 HCA  
CN Borane, [5'-[4-[bis(2,4,6-trimethylphenyl)boryl]phenyl][1,1':3',1''-terphenyl]-4,4''-diyl]bis[bis(2,4,6-trimethylphenyl)- (9CI) (CA INDEX NAME)

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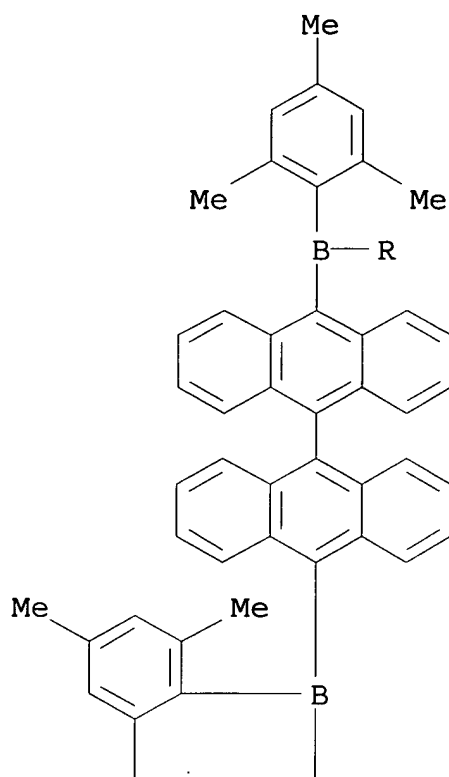


PAGE 2-A

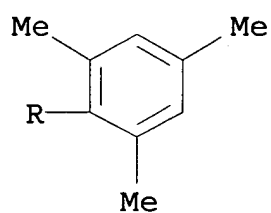
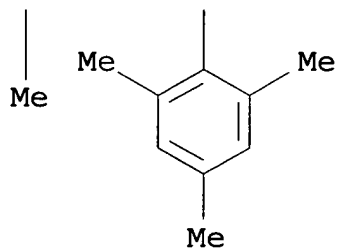


RN 301300-11-8 HCA  
 CN Borane, [9,9'-bianthracene]-10,10'-diylbis[bis(2,4,6-trimethylphenyl)- (9CI) (CA INDEX NAME)]

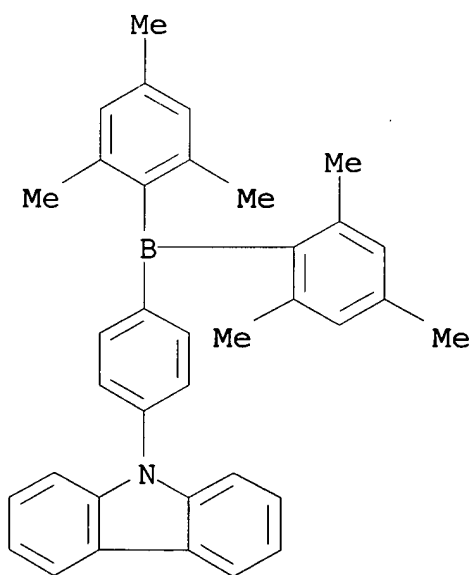
PAGE 1-A



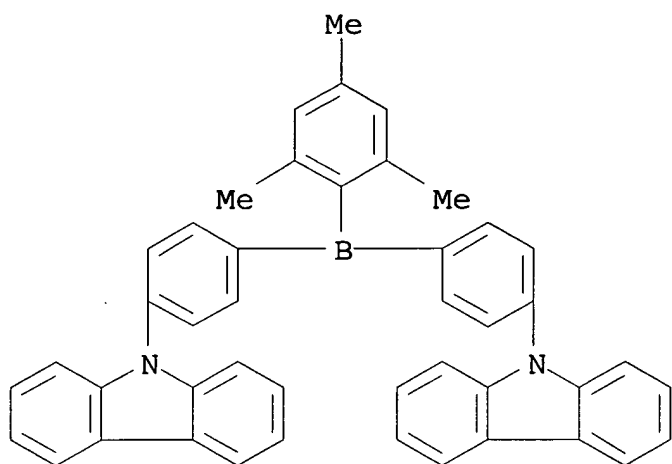
PAGE 2-A



RN 332350-52-4 HCA  
 CN 9H-Carbazole, 9-[4-[bis(2,4,6-trimethylphenyl)boryl]phenyl]- (9CI)  
 (CA INDEX NAME)

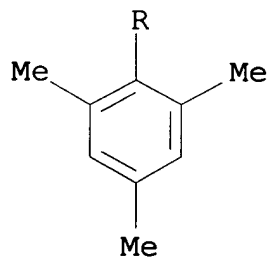
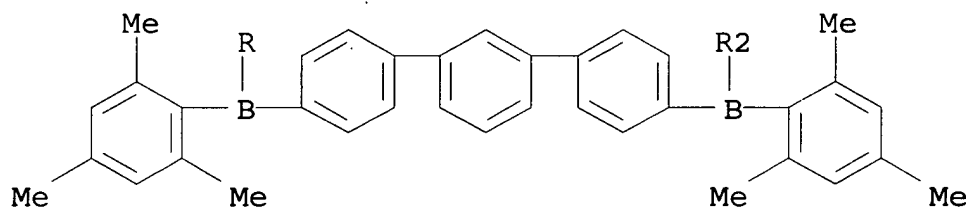


RN 332350-53-5 HCA  
 CN 9H-Carbazole, 9,9'-[[[(2,4,6-trimethylphenyl)borylene]di-4,1-phenylene]bis- (9CI) (CA INDEX NAME)



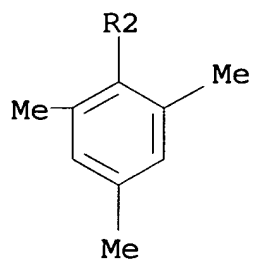
RN 492434-53-4 HCA  
 CN Borane, [1,1':3',1''-terphenyl]-4,4''-diylbis[bis(2,4,6-trimethylphenyl)- (9CI) (CA INDEX NAME)]

PAGE 1-A

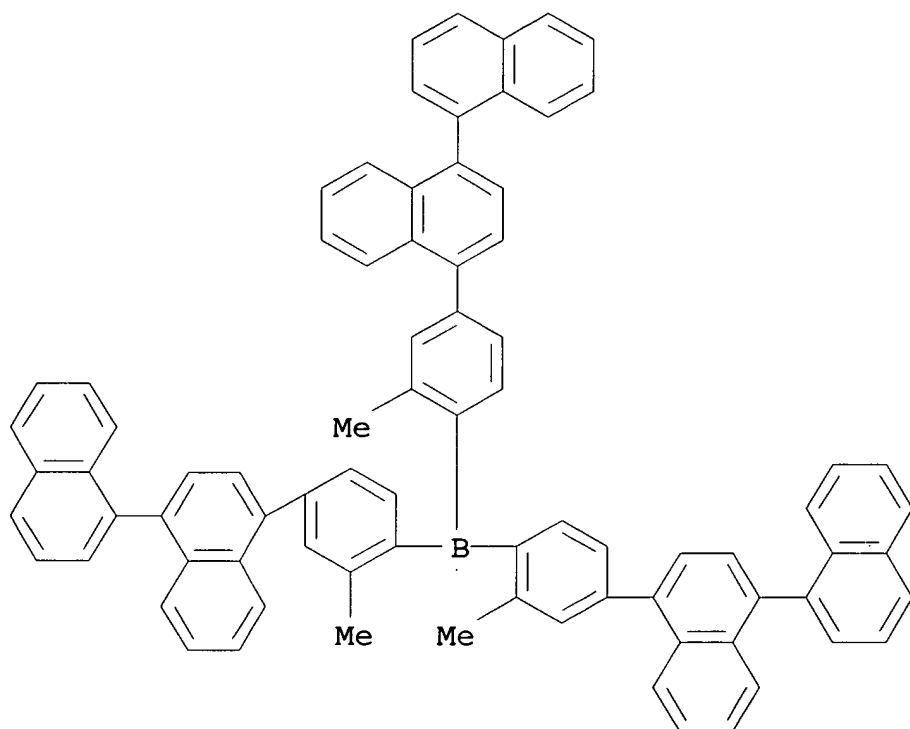




PAGE 2-A

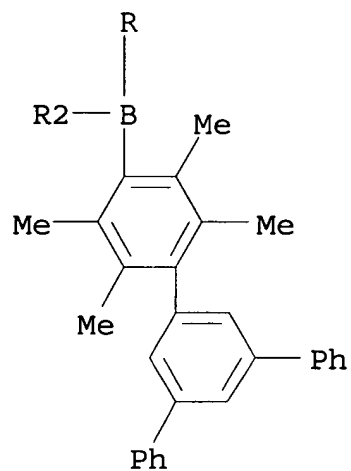


RN 492446-94-3 HCA  
 CN Borane, tris(4-[1,1'-binaphthalen]-4-yl-2-methylphenyl)- (9CI) (CA INDEX NAME)

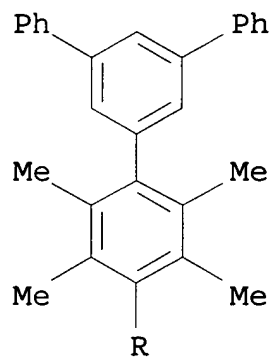


RN 492446-97-6 HCA  
 CN Borane, tris(2,3,5,6-tetramethyl-5'-phenyl[1,1':3',1''-terphenyl]-4-yl)- (9CI) (CA INDEX NAME)

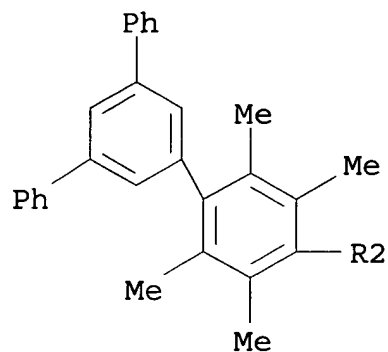
PAGE 1-A



PAGE 2-A

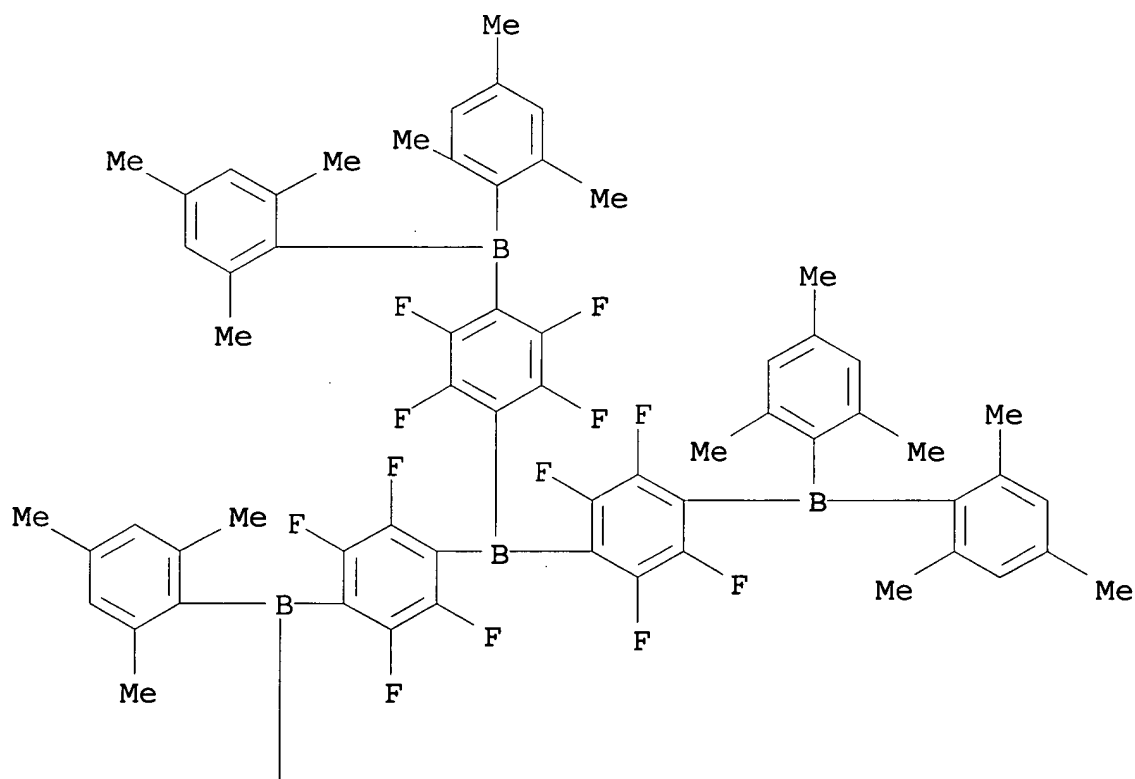


PAGE 3-A

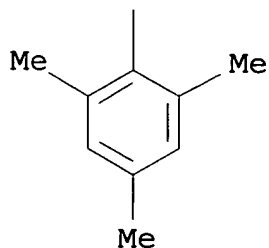


RN 492447-00-4 HCA  
 CN Borane, tris[4-[bis(2,4,6-trimethylphenyl)boryl]-2,3,5,6-tetrafluorophenyl]- (9CI) (CA INDEX NAME)

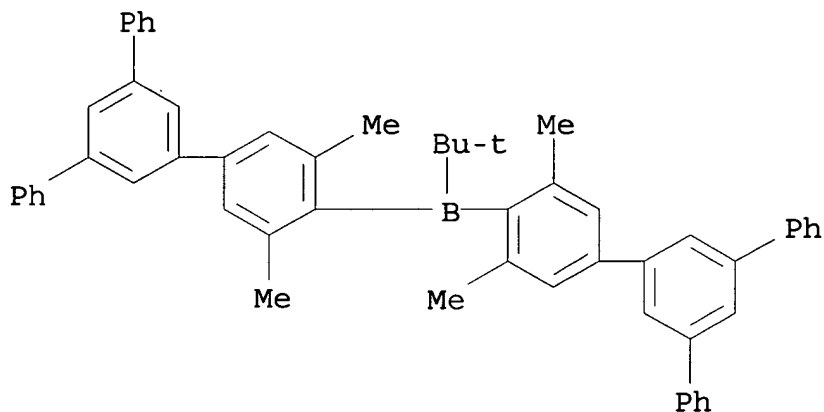
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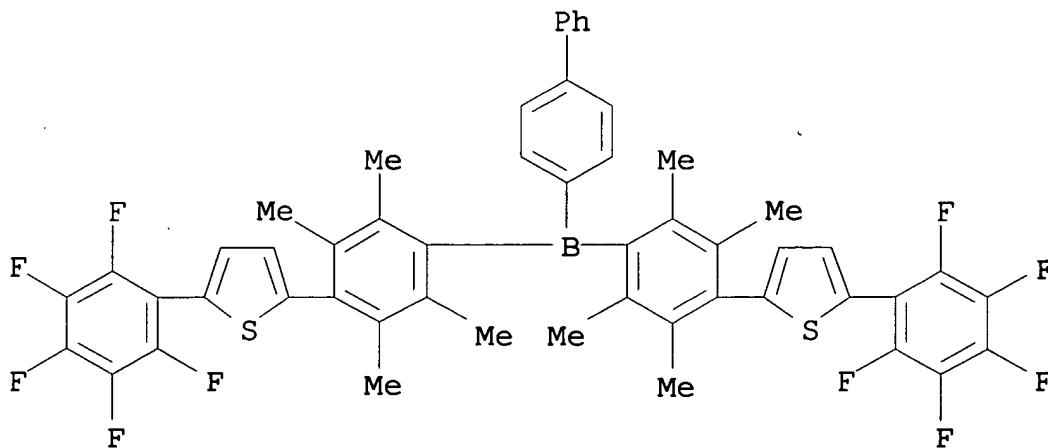
PAGE 2-A



RN 583040-29-3 HCA  
 CN Borane, (1,1-dimethylethyl)bis[3,5-dimethyl-5'-phenyl[1,1':3',1''-terphenyl]-4-yl]- (9CI) (CA INDEX NAME)

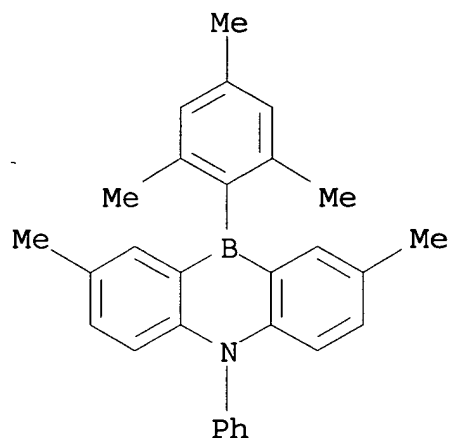


RN 583040-30-6 HCA  
 CN Borane, [1,1'-biphenyl]-4-ylbis[2,3,5,6-tetramethyl-4-[5-(pentafluorophenyl)-2-thienyl]phenyl]- (9CI) (CA INDEX NAME)



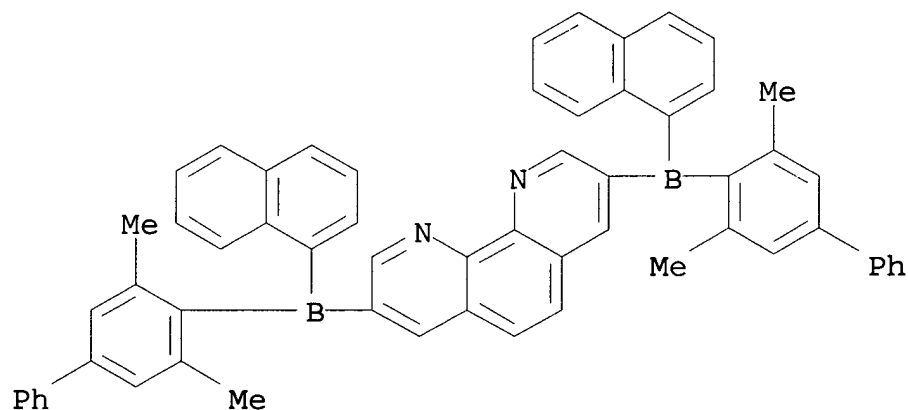
RN 583040-31-7 HCA

CN Phenazaborine, 5,10-dihydro-2,8-dimethyl-5-phenyl-10-(2,4,6-trimethylphenyl)- (9CI) (CA INDEX NAME)



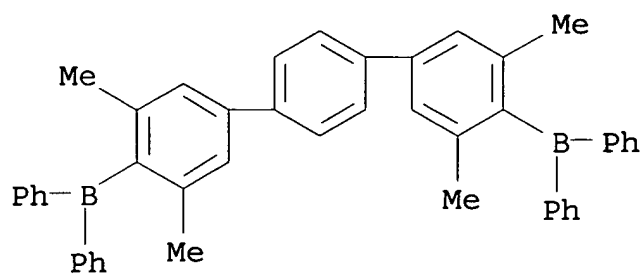
RN 583040-32-8 HCA

CN 1,10-Phenanthroline, 3,8-bis[(3,5-dimethyl[1,1'-biphenyl]-4-yl)-1-naphthalenylboryl]- (9CI) (CA INDEX NAME)



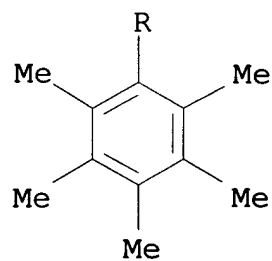
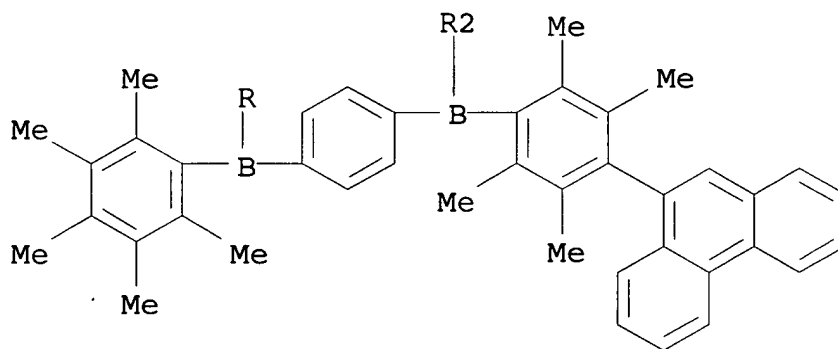
RN 583040-33-9 HCA

CN Borane, (3,3'',5,5''-tetramethyl[1,1':4',1''-terphenyl]-4,4''-diyl)bis[diphenyl]- (9CI) (CA INDEX NAME)

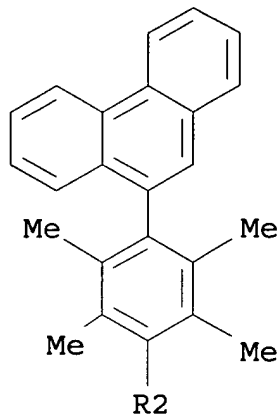


RN 583040-34-0 HCA  
 CN Borane, [4-[bis(pentamethylphenyl)boryl]phenyl]bis[2,3,5,6-tetramethyl-4-(9-phenanthrenyl)phenyl] - (9CI) (CA INDEX NAME)

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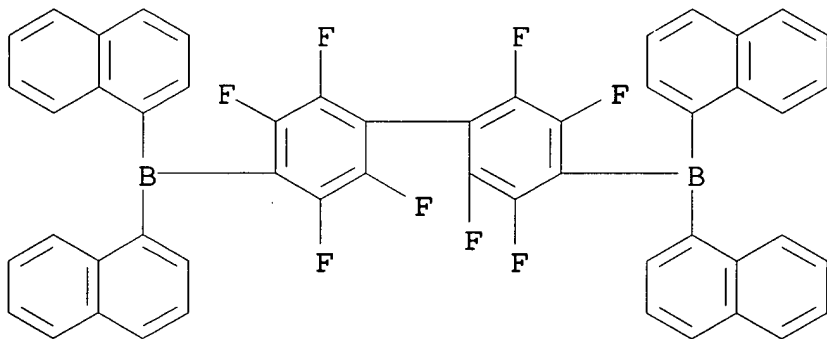


PAGE 2-A



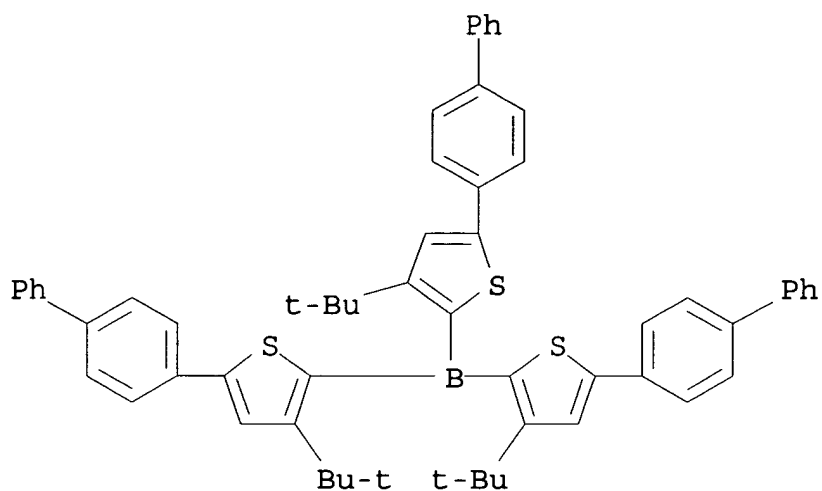
RN 583040-35-1 HCA

CN Borane, (2,2',3,3',5,5',6,6'-octafluoro[1,1'-biphenyl]-4,4'-diyl)bis[di-1-naphthalenyl- (9CI) (CA INDEX NAME)



RN 583040-36-2 HCA

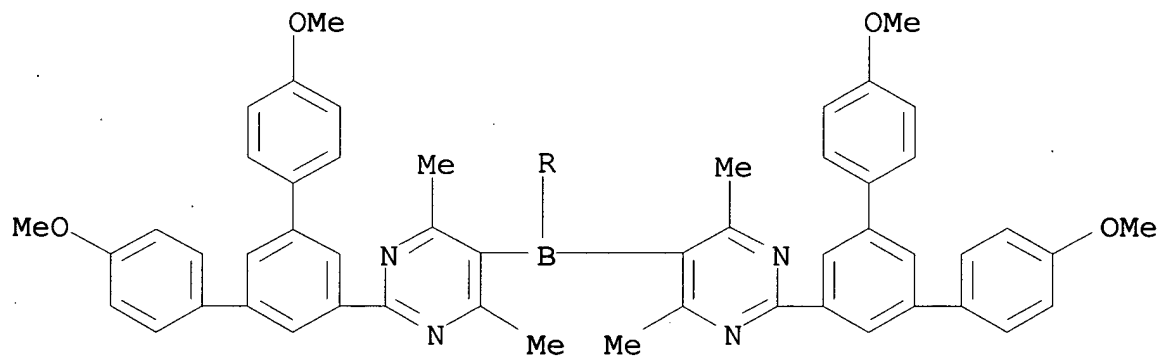
CN Borane, tris[5-[1,1'-biphenyl]-4-yl-3-(1,1-dimethylethyl)-2-thienyl]- (9CI) (CA INDEX NAME)



RN 583040-37-3 HCA

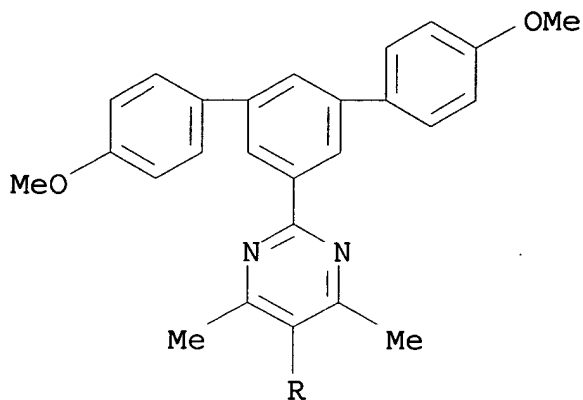
CN Pyrimidine, 5,5',5''-borylidynetris[2-(4,4''-dimethoxy[1,1':3',1''-terphenyl]-5'-yl)-4,6-dimethyl- (9CI) (CA INDEX NAME)

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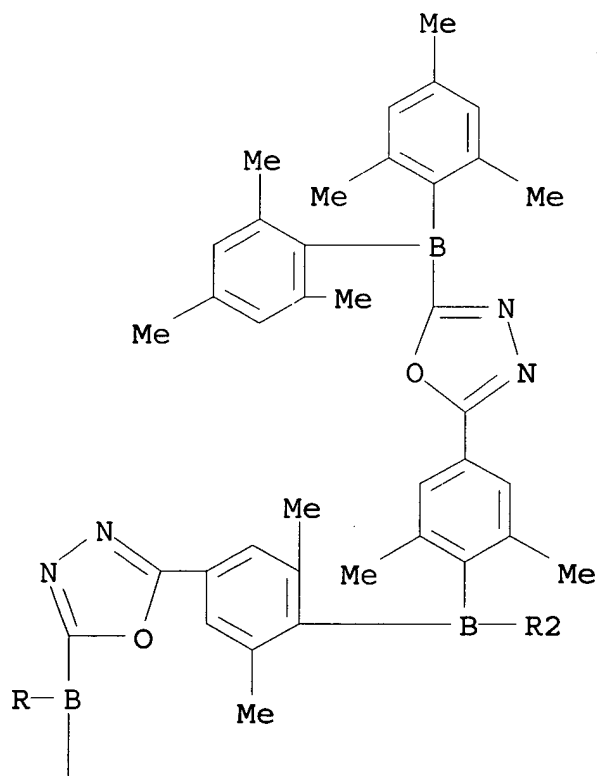


PAGE 2-A

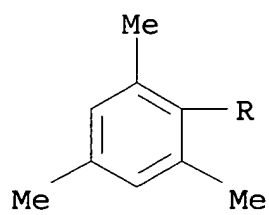
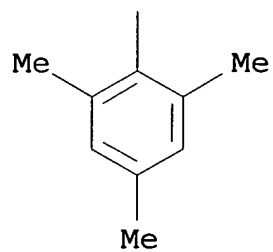


RN 583040-38-4 HCA  
 CN 1,3,4-Oxadiazole, 2,2',2''-[borylidynetris(3,5-dimethyl-4,1-phenylene)]tris[5-[bis(2,4,6-trimethylphenyl)borylene]- (9CI) (CA INDEX NAME)

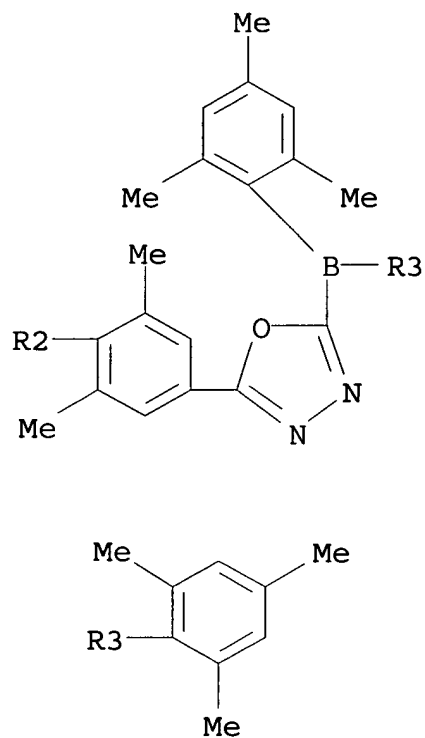
PAGE 1-A



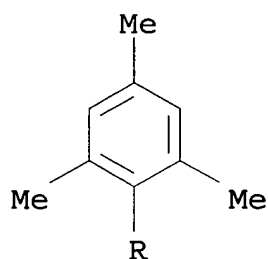
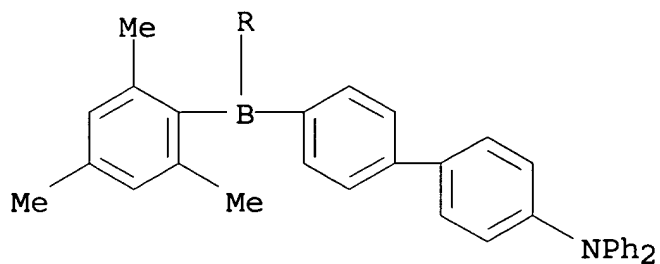
PAGE 2-A



PAGE 3-A

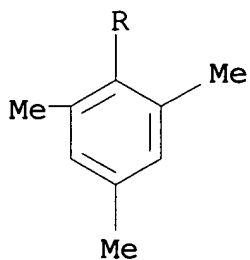
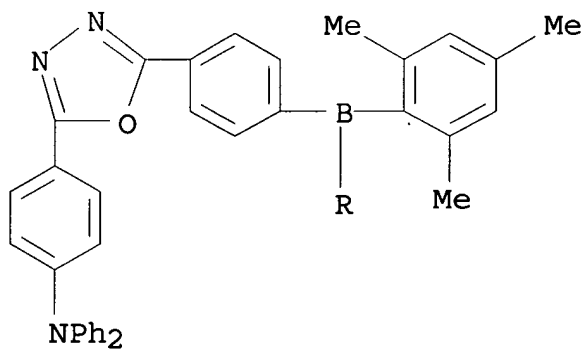


RN 583040-39-5 HCA  
 CN [1,1'-Biphenyl]-4-amine, 4'-[bis(2,4,6-trimethylphenyl)boryl]-N,N-diphenyl- (9CI) (CA INDEX NAME)



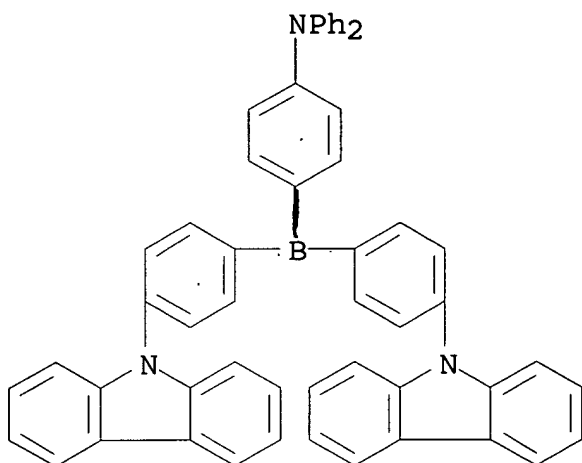
RN 583040-40-8 HCA

CN Benzenamine, 4-[5-[4-[bis(2,4,6-trimethylphenyl)boryl]phenyl]-1,3,4-oxadiazol-2-yl]-N,N-diphenyl- (9CI) (CA INDEX NAME)

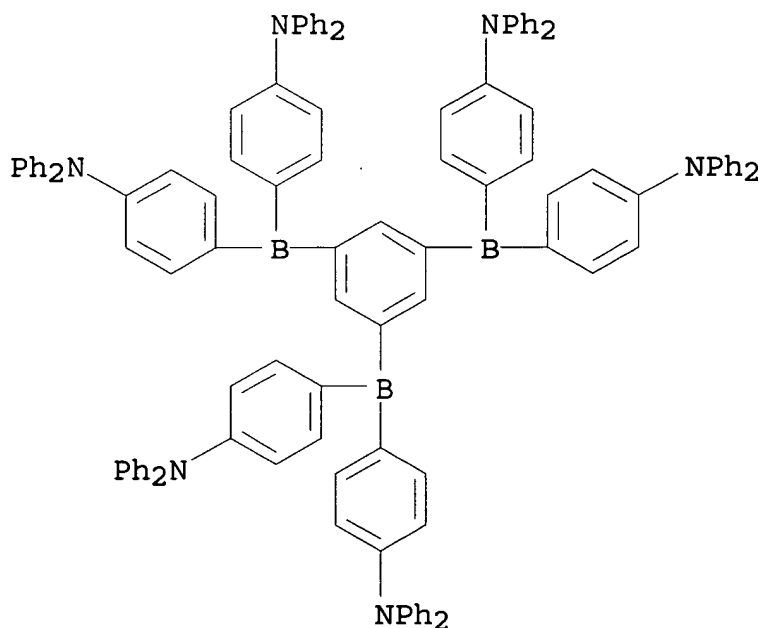


RN 583040-41-9 HCA

CN Benzenamine, 4-[bis[4-(9H-carbazol-9-yl)phenyl]boryl]-N,N-diphenyl-  
(9CI) (CA INDEX NAME)



RN 583040-42-0 HCA  
CN Benzenamine, 4,4',4'',4''',4''''',4''''''-(1,3,5-  
benzenetriyltriborylidyne)hexakis[N,N-diphenyl- (9CI) (CA INDEX  
NAME)

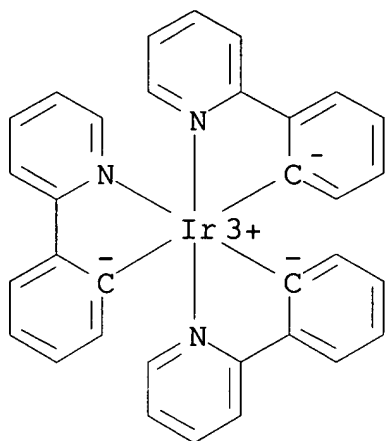


IT 94928-86-6 343978-79-0 376367-93-0  
(phosphorescent dopant; org. electroluminescent devices  
with **light-emitting** layer contg.  
phosphorescent compd. and host compd. contg.

boron atom in mol., and display employing  
electroluminescent devices)

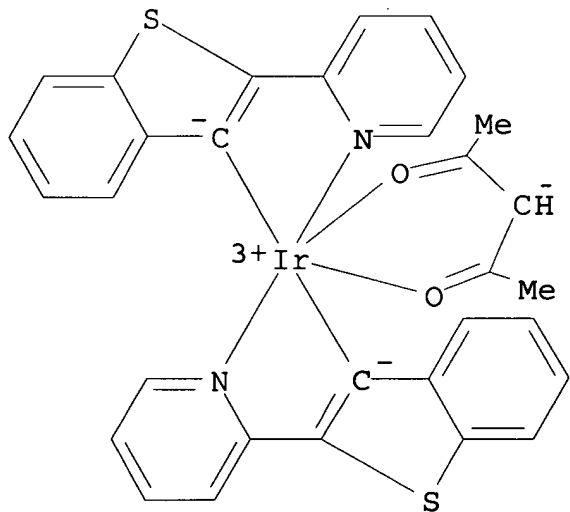
RN 94928-86-6 HCA

CN Iridium, tris[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]-, (OC-6-22) -  
(9CI) (CA INDEX NAME)



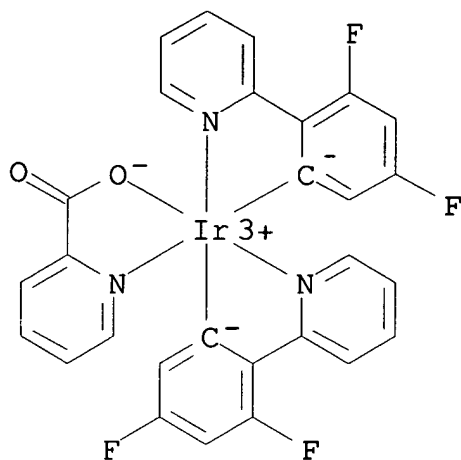
RN 343978-79-0 HCA

CN Iridium, (2,4-pentanedionato-.kappa.O,.kappa.O')bis[2-(2-pyridinyl-.kappa.N)benzo[b]thien-3-yl-.kappa.C]-, (OC-6-33) - (9CI) (CA INDEX NAME)



RN 376367-93-0 HCA

CN Iridium, bis[3,5-difluoro-2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C] (2-pyridinecarboxylato-.kappa.N1,.kappa.O2) - (9CI) (CA INDEX NAME)



- IC ICM H05B033-14  
 INCL 428690000; 428917000; 313504000; 257102000; 257103000  
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
 Section cross-reference(s): 22, 74, 76  
 ST org **electroluminescent** device display boron host phosphorescent  
 IT Optical imaging devices  
     (color, full color display; org. **electroluminescent** devices with **light-emitting** layer contg. phosphorescent compd. and host **compd. contg. boron** atom in mol., and display employing **electroluminescent** devices)  
 IT **Electroluminescent** devices  
     (displays; org. **electroluminescent** devices with **light-emitting** layer contg. phosphorescent compd. and host **compd. contg. boron** atom in mol., and display employing **electroluminescent** devices)  
 IT **Luminescent** screens  
     (**electroluminescent**; org. **electroluminescent** devices with **light-emitting** layer contg. phosphorescent compd. and host **compd. contg. boron** atom in mol., and display employing **electroluminescent** devices)  
 IT Phosphorescent substances  
     (org. **electroluminescent** devices with **light-emitting** layer contg. phosphorescent compd. and host **compd. contg. boron** atom in mol., and display employing **electroluminescent** devices)  
 IT **Platinum-group metal complexes**

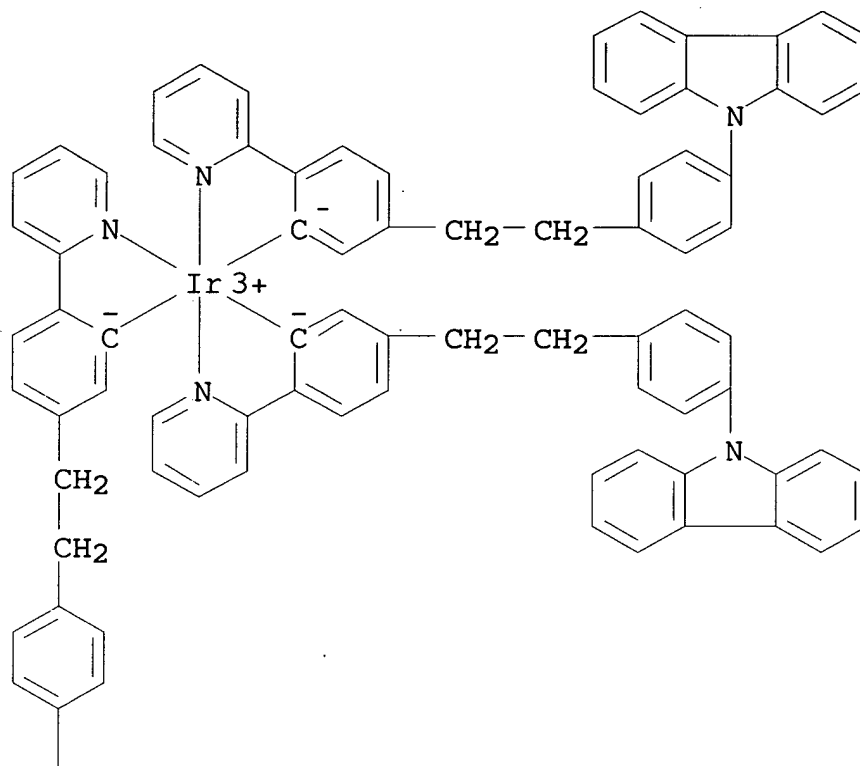
(osmium, iridium, platinum; org. electroluminescent devices with light-emitting layer contg. phosphorescent compd. and host compd. contg. boron atom in mol., and display employing electroluminescent devices)

- IT Electroluminescent devices  
(phosphorescent; org. electroluminescent devices with light-emitting layer contg. phosphorescent compd. and host compd. contg. boron atom in mol., and display employing electroluminescent devices)
- IT 4733-39-5, Bathocuproine  
(electron-transporting and hole-blocking layer; org. electroluminescent devices with light-emitting layer contg. phosphorescent compd. and host compd. contg. boron atom in mol., and display employing electroluminescent devices)
- IT 2085-33-8, Aluminum tris(8-hydroxyquinolinato)  
(electron-transporting layer; org. electroluminescent devices with light-emitting layer contg. phosphorescent compd. and host compd. contg. boron atom in mol., and display employing electroluminescent devices)
- IT 123847-85-8, .alpha.-NPD  
(hole-transporting layer; org. electroluminescent devices with light-emitting layer contg. phosphorescent compd. and host compd. contg. boron atom in mol., and display employing electroluminescent devices)
- IT 38186-32-2 213621-16-0 300823-56-7  
300823-57-8 301300-11-8 332350-52-4  
332350-53-5 492434-53-4 492446-94-3  
492446-97-6 492447-00-4 583040-29-3  
583040-30-6 583040-31-7 583040-32-8  
583040-33-9 583040-34-0 583040-35-1  
583040-36-2 583040-37-3 583040-38-4  
583040-39-5 583040-40-8 583040-41-9  
583040-42-0  
(host in light-emitting layer; org. electroluminescent devices with light-emitting layer contg. phosphorescent compd. and host compd. contg. boron atom in mol., and display employing electroluminescent devices)
- IT 7440-42-8D, Boron, compds.  
(org. electroluminescent devices with light-emitting layer contg. phosphorescent compd. and host compd. contg. boron atom in mol., and display employing electroluminescent devices)

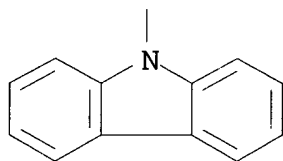


- IT 94928-86-6 343978-79-0 376367-93-0  
(phosphorescent dopant; org. **electroluminescent** devices  
with **light-emitting** layer contg.  
phosphorescent compd. and host **compd. contg.**  
**boron** atom in mol., and display employing  
**electroluminescent** devices)
- L57 ANSWER 9 OF 17 HCA COPYRIGHT 2005 ACS on STN  
139:188402 Organic **electroluminescent** devices/displays and  
dendritic complex compounds therefor. Tokito, Seiji; Tsuzuki,  
Toshimitsu; Shirasawa, Nobuhiko; Suzuki, Toshiyasu (Japan  
Broadcasting Corp., Japan). Jpn. Kokai Tokkyo Koho JP 2003231692 A2  
20030819, 16 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP  
2002-351662 20021203. PRIORITY: JP 2001-370628 20011204.
- AB Compds. including **light-emitting** central cores  
(and hole- or electron-transporting branches), and (full-color)  
large org. LED including the same in emission layers are sep.  
claimed. The said cores may have transition (or rare-earth) metal  
complexes. The LED show long life and high luminescent efficiency.
- IT 578715-38-5P 578715-39-6P 578715-41-0P  
578715-43-2P  
(emission layers; org. **electroluminescent**  
devices/displays and long-life emission materials therefor)
- RN 578715-38-5 HCA  
CN Iridium, tris[5-[2-[4-(9H-carbazol-9-yl)phenyl]ethyl]-2-(2-pyridinyl-  
.kappa.N)phenyl-.kappa.C]-, (OC-6-22)-(9CI) (CA INDEX NAME)

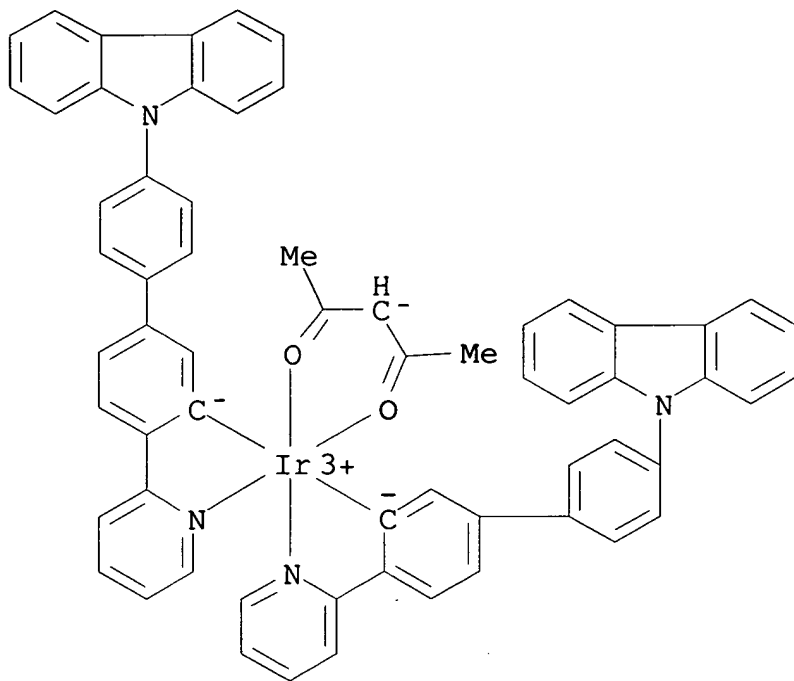
PAGE 1-A



PAGE 2-A

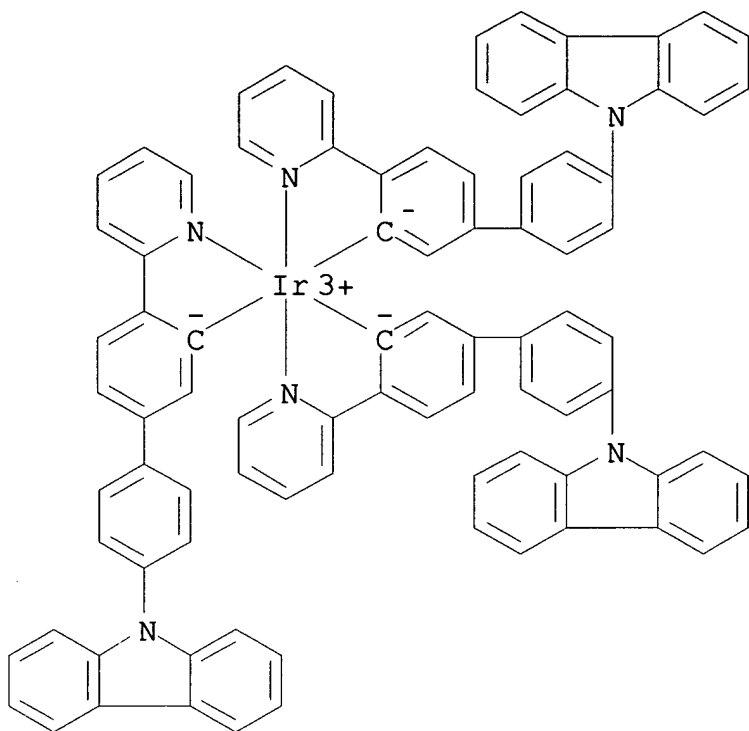


RN 578715-39-6 HCA  
 CN Iridium, bis[4'-(9H-carbazol-9-yl)-4-(2-pyridinyl-.kappa.N) [1,1'-biphenyl]-3-yl-.kappa.C] (2,4-pentanedionato-.kappa.O, .kappa.O')-(9CI) (CA INDEX NAME)



RN 578715-41-0 HCA

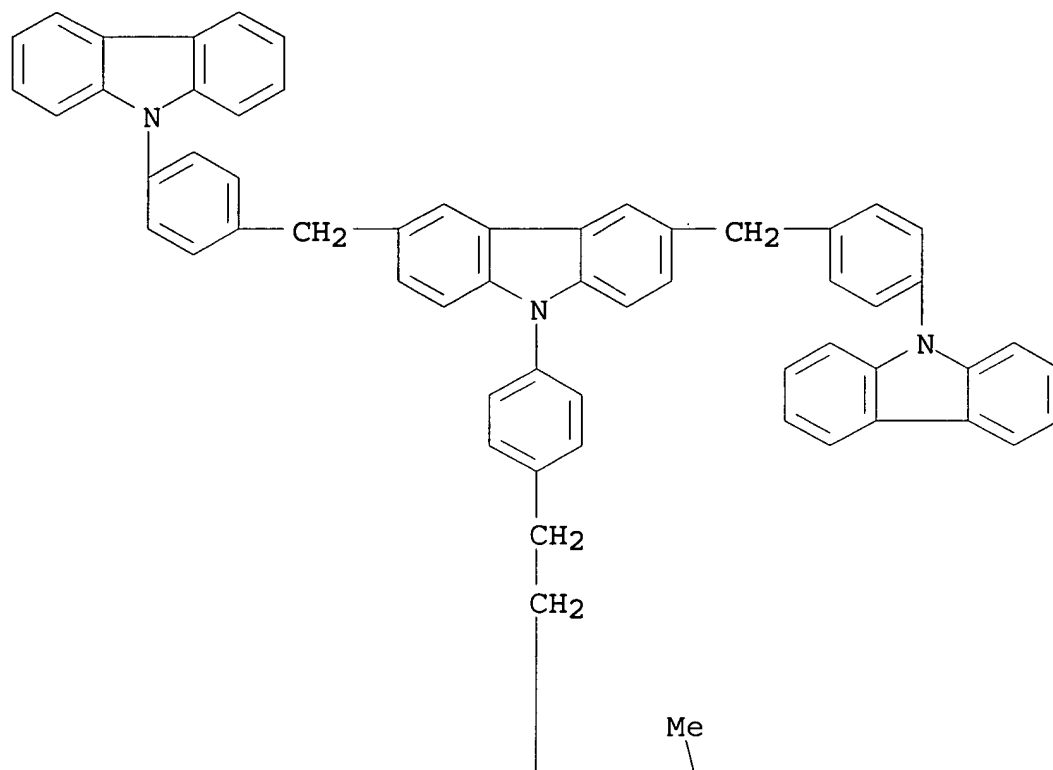
CN Iridium, tris[4'-((9H-carbazol-9-yl)-4-(2-pyridinyl-.kappa.N)[1,1'-biphenyl]-3-yl-.kappa.C)-, (OC-6-22)-(9CI) (CA INDEX NAME)



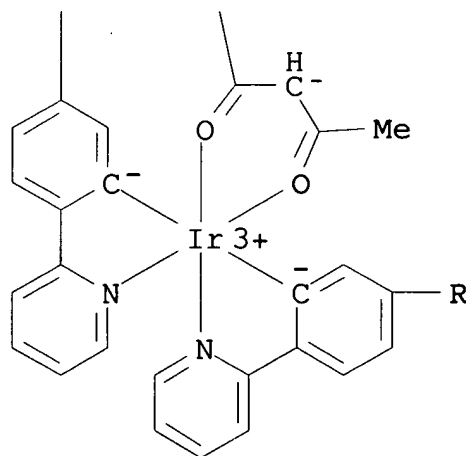
RN 578715-43-2 HCA

CN Iridium, bis[5-[2-[4-[3,6-bis[[4-(9H-carbazol-9-yl)phenyl]methyl]-9H-carbazol-9-yl]phenyl]ethyl]-2-(2-pyridinyl-κ<sup>N</sup>)phenyl-κ<sup>C</sup>](2,4-pentanedionato-κ<sup>O</sup>,κ<sup>O'</sup>)-(9CI) (CA INDEX NAME)

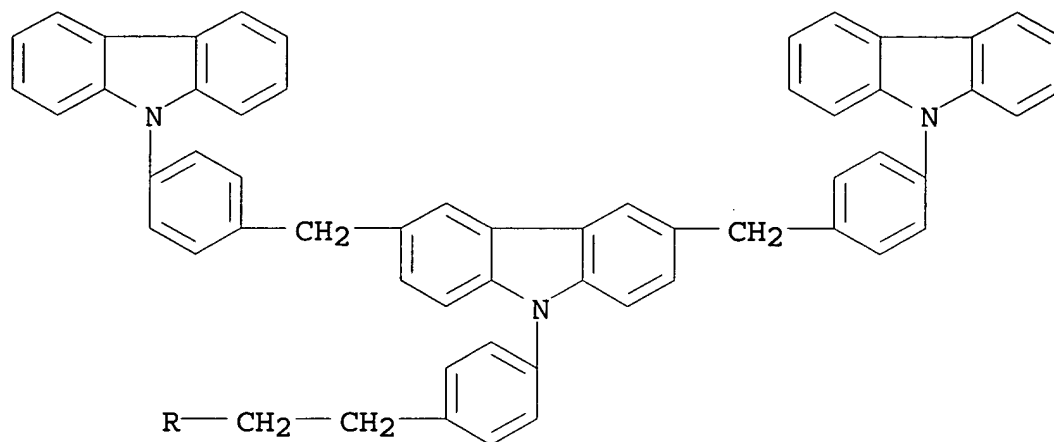
PAGE 1-A



PAGE 2-A



PAGE 3-A

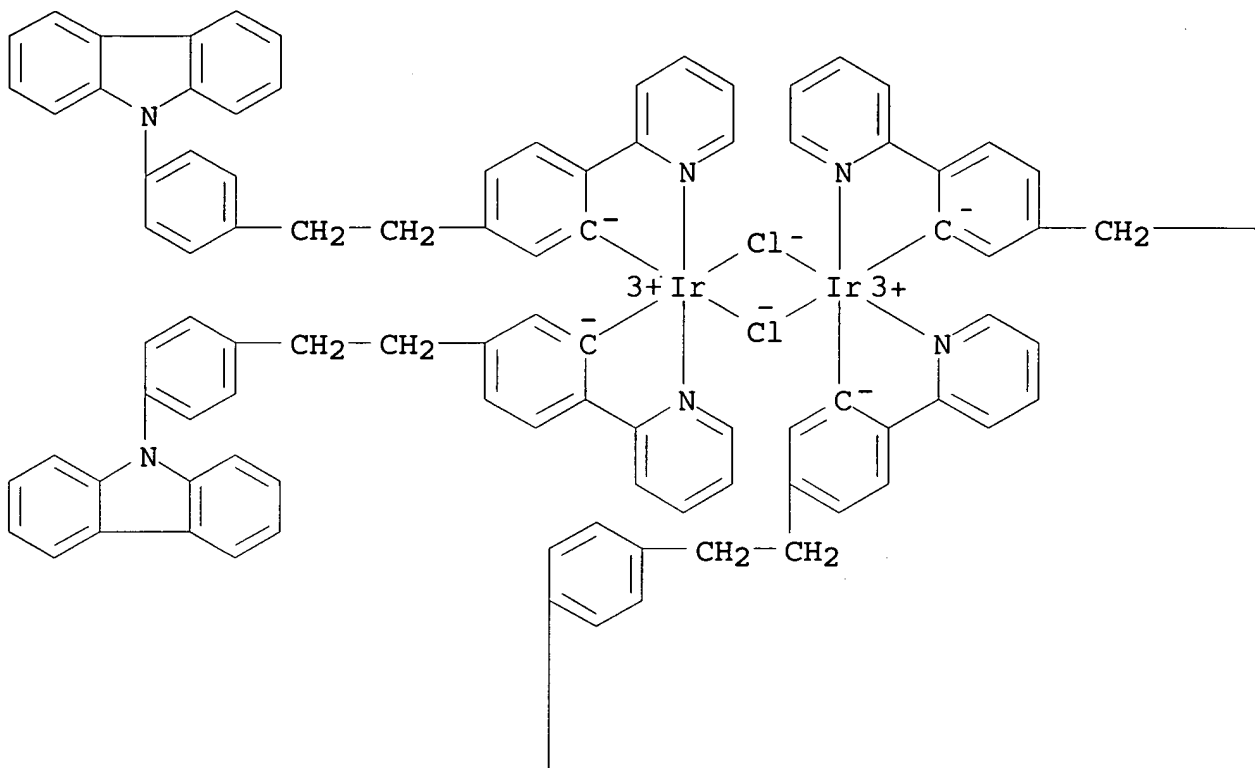


IT 578715-44-3P  
(intermediates; del borg. **electroluminescent**  
devices/displays and long-life emission materials therefor)

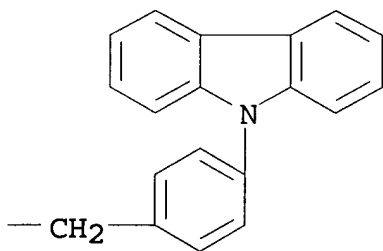
RN 578715-44-3 HCA

CN Iridium, tetrakis[5-[2-[4-(9H-carbazol-9-yl)phenyl]ethyl]-2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]di-.mu.-chlorodi- (9CI) (CA  
INDEX NAME)

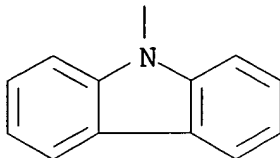
PAGE 1-A



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IT 578715-46-5P

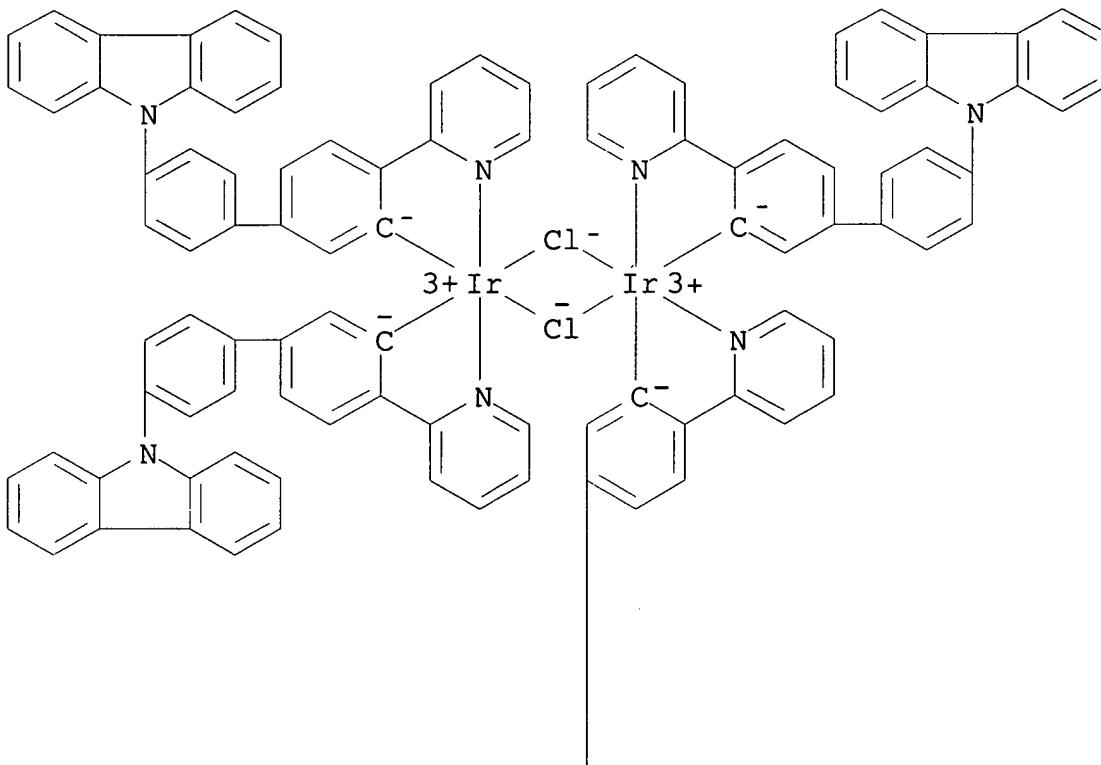
(intermediates; reorg. **electroluminescent**

devices/displays and long-life emission materials therefor)

RN 578715-46-5 HCA

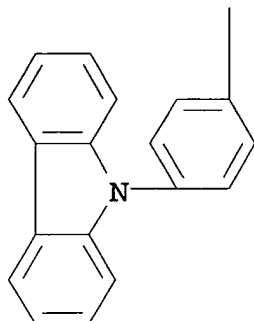
CN Iridium, tetrakis[4'-(9H-carbazol-9-yl)-4-(2-pyridinyl)-  
.kappa.N) [1,1'-biphenyl]-3-yl-.kappa.C]di-.mu.-chlorodi- (9CI) (CA  
INDEX NAME)

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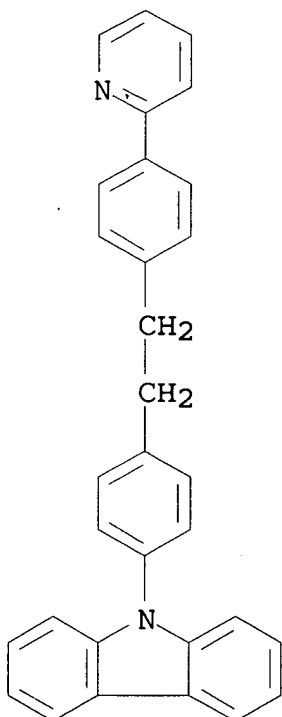
PAGE 2-A



IT 578710-59-5P 578710-61-9P

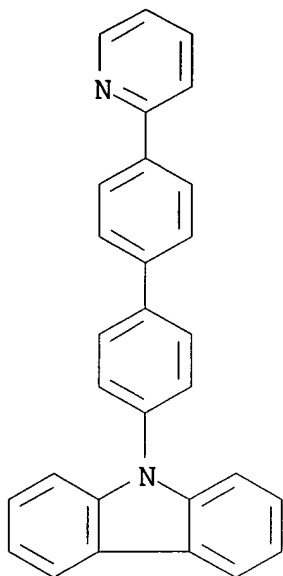
(ligands; org. **electroluminescent** devices/displays and  
long-life emission materials therefor)

RN 578710-59-5 HCA

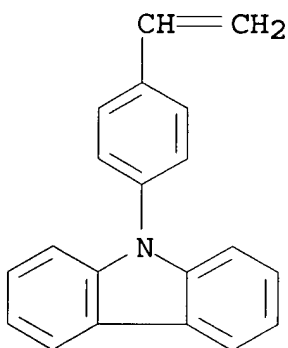
CN 9H-Carbazole, 9-[4-[2-[4-(2-pyridinyl)phenyl]ethyl]phenyl]- (9CI)  
(CA INDEX NAME)

RN 578710-61-9 HCA

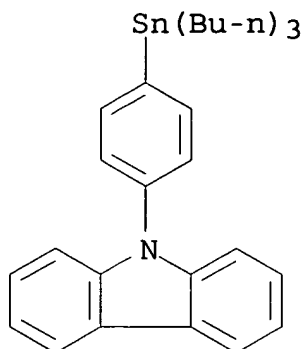
CN 9H-Carbazole, 9-[4'-(2-pyridinyl)[1,1'-biphenyl]-4-yl]- (9CI) (CA  
INDEX NAME)



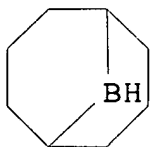
IT 52913-19-6P 578710-60-8P  
 (org. **electroluminescent** devices/displays and long-life  
 emission materials therefor)  
 RN 52913-19-6 HCA  
 CN 9H-Carbazole, 9-(4-ethenylphenyl)- (9CI) (CA INDEX NAME)



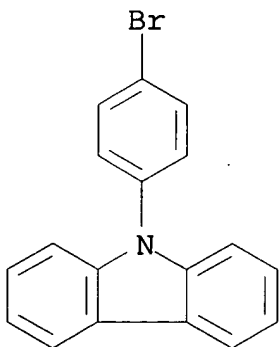
RN 578710-60-8 HCA  
 CN 9H-Carbazole, 9-[4-(tributylstannyl)phenyl]- (9CI) (CA INDEX NAME)



IT 280-64-8, 9-BBN 57102-42-8, 9-(4-Bromophenyl)carbazole  
 (org. **electroluminescent** devices/displays and long-life  
 emission materials therefor)  
 RN 280-64-8 HCA  
 CN 9-Borabicyclo[3.3.1]nonane (8CI, 9CI) (CA INDEX NAME)



RN 57102-42-8 HCA  
 CN 9H-Carbazole, 9-(4-bromophenyl)- (9CI) (CA INDEX NAME)



IC ICM C07F015-00  
 ICS C09K011-06; H05B033-14; H05B033-22  
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and  
 Other Reprographic Processes)  
 Section cross-reference(s): 29, 73  
 ST dendritic **iridium complex** org

- electroluminescent** display; charge transporting branch  
**iridium complex** LED
- IT Rare earth complexes  
(dendritic, **electroluminescent**; org.  
**electroluminescent** devices/displays and long-life  
emission materials therefor)
- IT Transition metal complexes  
(dendritic, **electroluminescent**; org.  
**electroluminescent** devices/displays and long-life  
emission materials therefor)
- IT **Electroluminescent** devices  
(displays; org. **electroluminescent** devices/displays and  
long-life emission materials therefor)
- IT Luminescent substances  
(**electroluminescent**, phosphorescent; org.  
**electroluminescent** devices/displays and long-life  
emission materials therefor)
- IT **Luminescent** screens  
(**electroluminescent**; org.  
**electroluminescent** devices/displays and long-life  
emission materials therefor)
- IT **Electroluminescent** devices  
(org. **electroluminescent** devices/displays and long-life  
emission materials therefor)
- IT **578715-38-5P 578715-39-6P 578715-41-0P**  
**578715-43-2P**  
(emission layers; org. **electroluminescent**  
devices/displays and long-life emission materials therefor)
- IT **578715-44-3P**  
(intermediates; del borg. **electroluminescent**  
devices/displays and long-life emission materials therefor)
- IT **578715-46-5P**  
(intermediates; reorg. **electroluminescent**  
devices/displays and long-life emission materials therefor)
- IT **578710-59-5P 578710-61-9P**  
(ligands; org. **electroluminescent** devices/displays and  
long-life emission materials therefor)
- IT **52913-19-6P 578710-60-8P**  
(org. **electroluminescent** devices/displays and long-life  
emission materials therefor)
- IT 86-74-8, Carbazole 92-66-0, 4-Bromobiphenyl **280-64-8**,  
9-BBN 1461-22-9, Tributyltin chloride 2039-82-9, 4-Bromostyrene  
15702-05-3, Sodium iridium chloride (Na3IrCl6) **57102-42-8**,  
9-(4-Bromophenyl)carbazole 63996-36-1, 2-(4-Bromophenyl)pyridine  
(org. **electroluminescent** devices/displays and long-life  
emission materials therefor)

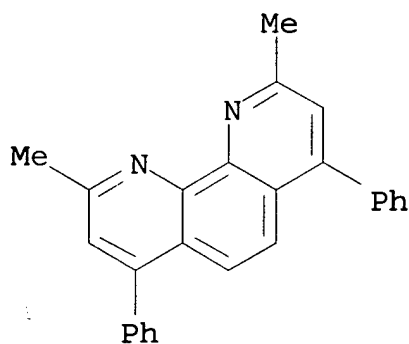
138:245292 Organic **electroluminescent** devices. Tsuge, Hodaka; Komatsuzaki, Akihiro (Honda Motor Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2003077673 A2 20030314, 18 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-297338 20010927. PRIORITY: JP 2001-185486 20010619.

AB The devices comprise: a glass substrate; an ITO electrode; and a hole transport, a phosphor, an electron transport, and a metal electrode layer, where the phosphor layer comprises a dopant and a conductive polymer host poly(9-R,9-R-9H-carbazol-2,7-diyl) and/or poly(9-R-9H-carbazol-3,6-diyl) (R = H, aliph. or arom. hydrocarbon, ether, heterocyclic group).

IT **4733-39-5 94928-86-6 501355-43-7,**  
Poly(9-phenyl-9H-carbazole-3,6-diyl) **501355-53-9**  
(org. **electroluminescent** devices)

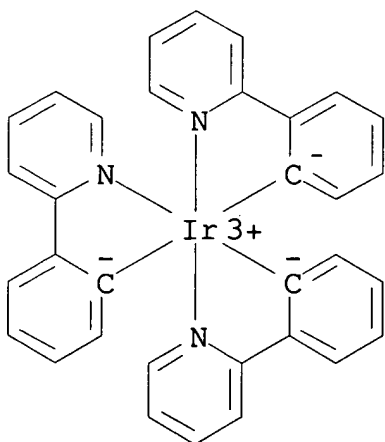
RN 4733-39-5 HCA

CN 1,10-Phenanthroline, 2,9-dimethyl-4,7-diphenyl- (6CI, 7CI, 8CI, 9CI)  
(CA INDEX NAME)



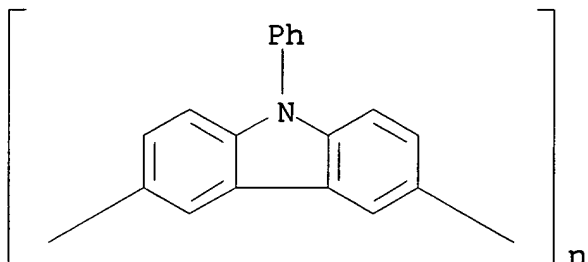
RN 94928-86-6 HCA

CN Iridium, tris[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]-, (OC-6-22) - (9CI) (CA INDEX NAME)



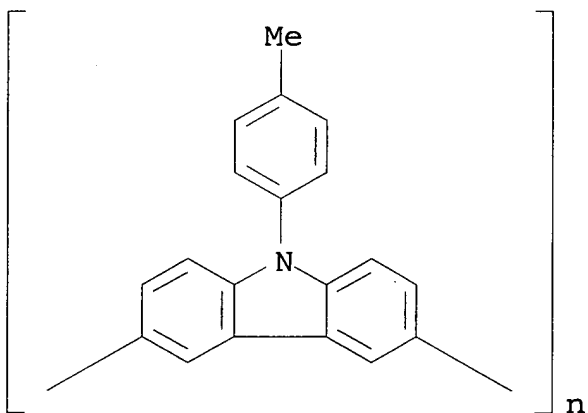
RN 501355-43-7 HCA

CN Poly(9-phenyl-9H-carbazole-3,6-diyl) (9CI) (CA INDEX NAME)



RN 501355-53-9 HCA

CN Poly[9-(4-methylphenyl)-9H-carbazole-3,6-diyl] (9CI) (CA INDEX NAME)



IC ICM H05B033-14

ICS C09K011-06; H05B033-10; H05B033-22; C07D213-16; C07D277-66;  
C07D409-14

CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

ST org **electroluminescent** device

IT Anodes

Cathodes

Doping

Electronics

Phosphorescence

(org. **electroluminescent** devices)

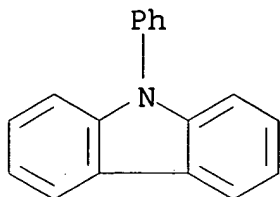
IT Polymers, uses

(org. **electroluminescent** devices)

IT Aromatic hydrocarbons, reactions

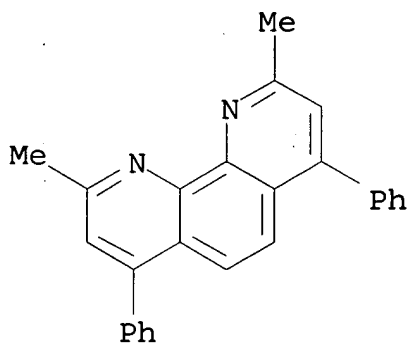
(org. **electroluminescent** devices)

- IT 2085-33-8, Tris(8-quinolinolato)aluminum 4733-39-5  
15082-28-7 25067-59-8, 9H-Carbazole, 9-ethenyl-, homopolymer  
50926-11-9, ITO 94928-86-6 195456-48-5,  
Poly(9,9-dioctyl-9H-fluorene-2,7-diyl) 330649-87-1,  
Poly(9,9-diphenyl-9H-fluorene-2,7-diyl) 483306-63-4 483306-68-9  
501355-43-7, Poly(9-phenyl-9H-carbazole-3,6-diyl)  
501355-44-8 501355-45-9 501355-46-0 501355-47-1 501355-48-2,  
Poly(9,9-dicarboxy-9H-fluorene-2,7-diyl) 501355-49-3,  
Poly(9-propoxy-9H-carbazole-3,6-diyl) 501355-50-6,  
Poly(9-butoxy-9H-carbazole-3,6-diyl) 501355-51-7 501355-52-8  
501355-53-9 501355-54-0 501355-55-1,  
Poly(9-carboxy-9H-carbazole-3,6-diyl)  
(org. electroluminescent devices)
- IT 56-23-5, Tetrachloromethane, reactions 75-05-8, Acetonitrile,  
reactions 75-52-5, Nitromethane, reactions 79-24-3, Nitroethane  
90-11-9, .alpha.-Bromonaphthalene 100-41-4, Ethylbenzene,  
reactions 108-38-3, m-Xylene, reactions 108-87-2,  
Methylcyclohexane 109-66-0, n-Pentane, reactions 110-54-3,  
Hexane, reactions 110-82-7, Cyclohexane, reactions 111-65-9,  
n-Octane, reactions 124-18-5, n-Decane 142-82-5, Heptane,  
reactions 540-54-5, 1-Chloropropane 872-05-9, 1-Decene  
(org. electroluminescent devices)
- L57 ANSWER 11 OF 17 HCA COPYRIGHT 2005 ACS on STN  
138:98000 Organic electroluminescent devices using  
polyfluorenylene derivatives in hole transporting layers. Tsuge,  
Hodaka; Komatsuzaki, Akihiro (Honda Motor Co., Ltd., Japan). Jpn.  
Kokai Tokkyo Koho JP 2003007475 A2 20030110, 18 pp. (Japanese).  
CODEN: JKXXAF. APPLICATION: JP 2001-186892 20010620.
- AB Title devices are formed between electrode layers of anode layer and  
cathode layer comprising an electron blocking layer (hole  
transporting layer) and a light-emitting layer;  
wherein, the electron blocking layer contains a polymer repeating  
unit -9R,9R-fluorenylene- [R = H, aliph./arom. hydrocarbyl, ether  
and heterocyclyl]. The devices offer higher luminous efficiency.
- IT 1150-62-5 4733-39-5 94928-86-6  
115558-41-3 146847-06-5 153838-48-3  
337526-85-9 337526-87-1 337526-88-2  
337526-98-4 343978-78-9 343978-79-0  
343978-94-9 468732-33-4 468732-34-5  
477801-34-6 477801-50-6 483306-57-6  
(org. electroluminescent devices using polyfluorenylene  
derivs.)
- RN 1150-62-5 HCA  
CN 9H-Carbazole, 9-phenyl- (9CI) (CA INDEX NAME)



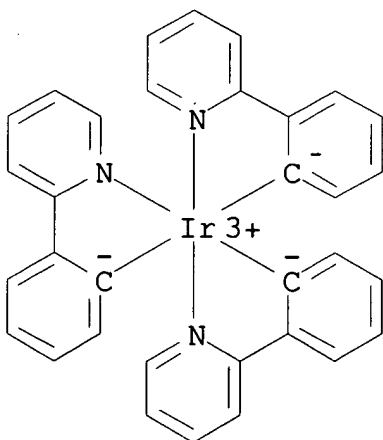
RN 4733-39-5 HCA

CN 1,10-Phenanthroline, 2,9-dimethyl-4,7-diphenyl- (6CI, 7CI, 8CI, 9CI)  
(CA INDEX NAME)



RN 94928-86-6 HCA

CN Iridium, tris[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]-, (OC-6-22)-  
(9CI) (CA INDEX NAME)



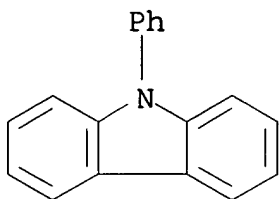
RN 115558-41-3 HCA

CN 9H-Carbazole, 9-phenyl-, homopolymer (9CI) (CA INDEX NAME)

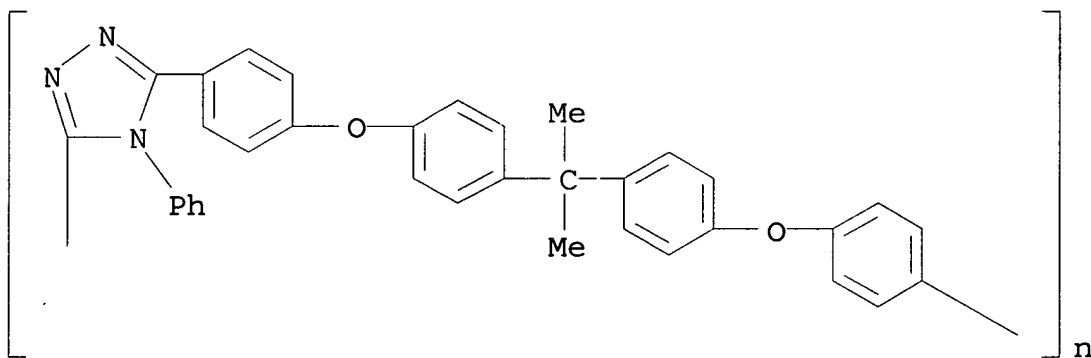
CM 1



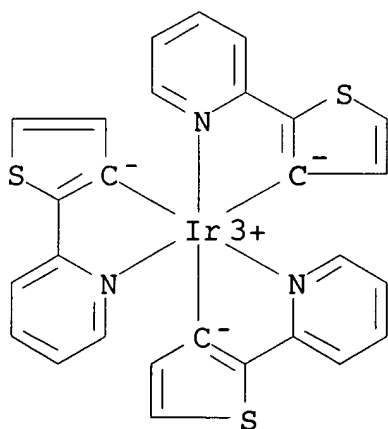
CRN 1150-62-5  
CMF C18 H13 N



RN 146847-06-5 HCA  
CN Poly[(4-phenyl-4H-1,2,4-triazole-3,5-diyl)-1,4-phenyleneoxy-1,4-phenylene(1-methylethylidene)-1,4-phenyleneoxy-1,4-phenylene] (9CI)  
(CA INDEX NAME)

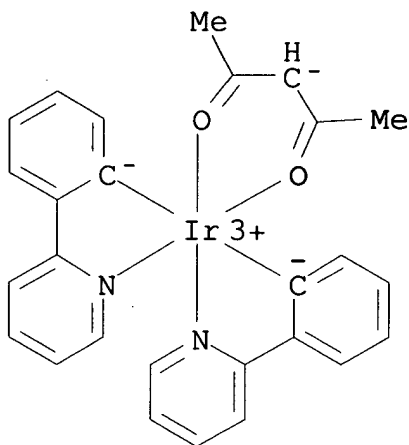


RN 153838-48-3 HCA  
CN Iridium, tris[2-(2-pyridinyl-.kappa.N)-3-thienyl-.kappa.C]-,  
(OC-6-22)- (9CI) (CA INDEX NAME)



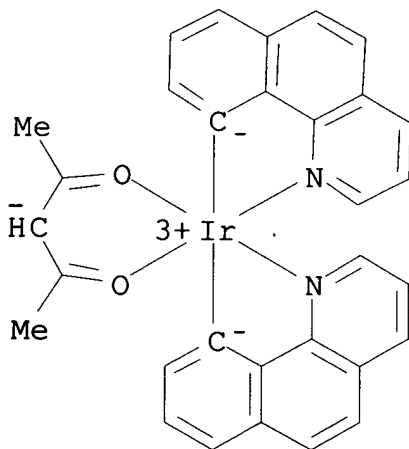
RN 337526-85-9 HCA

CN Iridium, (2,4-pentanedionato-.kappa.O,.kappa.O')bis[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]-, (OC-6-33)- (9CI) (CA INDEX NAME)



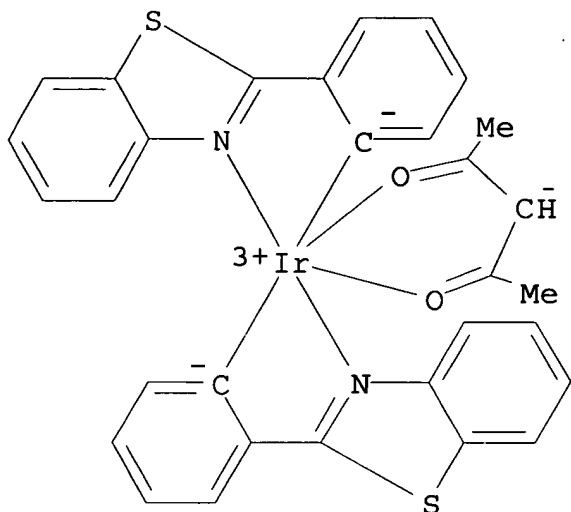
RN 337526-87-1 HCA

CN Iridium, bis(benzo[h]quinolin-10-yl-.kappa.C,.kappa.N) (2,4-pentanedionato-.kappa.O,.kappa.O')-, (OC-6-33)- (9CI) (CA INDEX NAME)



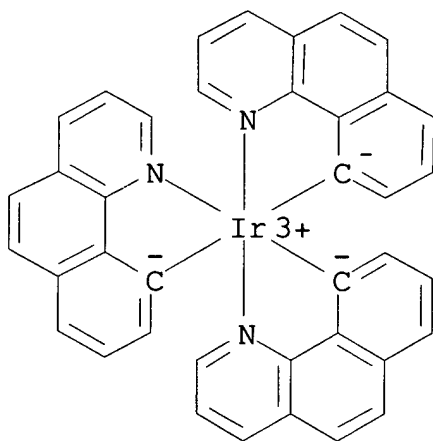
RN 337526-88-2 HCA

CN Iridium, bis[2-(2-benzothiazolyl-.kappa.N3)phenyl-.kappa.C] (2,4-pentanedionato-.kappa.O,.kappa.O')-, (OC-6-33)- (9CI) (CA INDEX NAME)



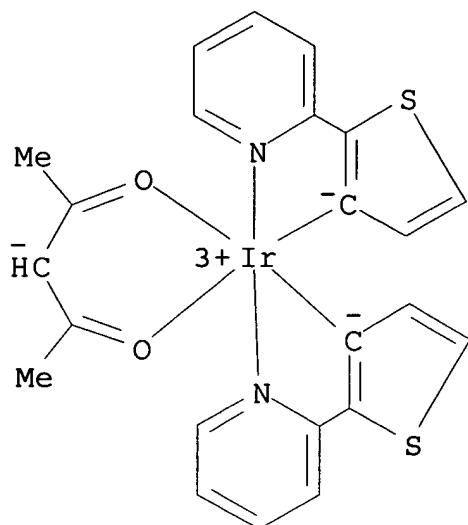
RN 337526-98-4 HCA

CN Iridium, tris(benzo[h]quinolin-10-yl-.kappa.C,.kappa.N)-, (OC-6-22)-(9CI) (CA INDEX NAME)



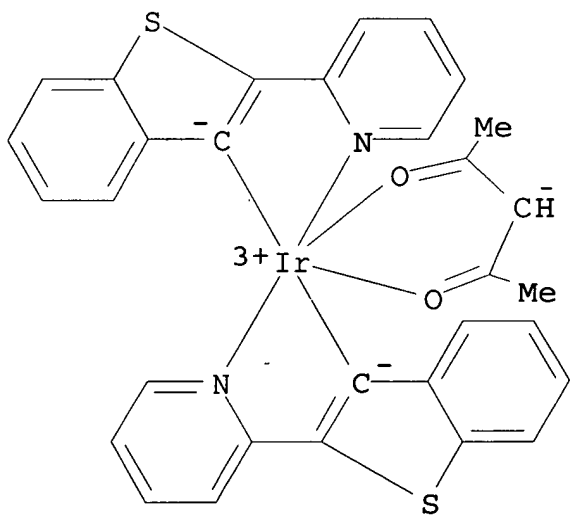
RN 343978-78-9 HCA

CN Iridium, (2,4-pentanedionato-.kappa.O,.kappa.O')bis[2-(2-pyridinyl-.kappa.N)-3-thienyl-.kappa.C]-, (OC-6-33)-(9CI) (CA INDEX NAME)



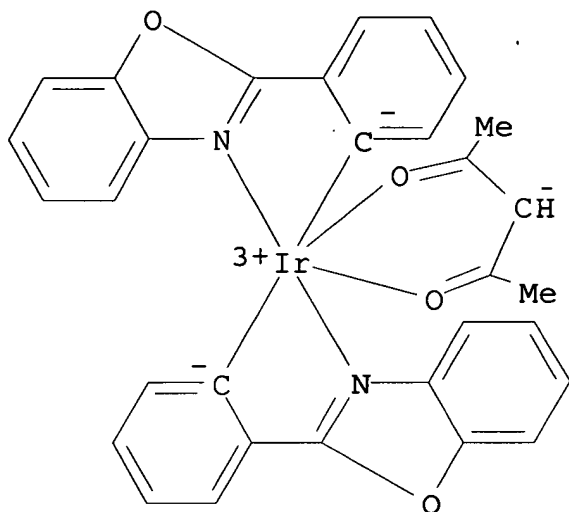
RN 343978-79-0 HCA

CN Iridium, (2,4-pentanedionato-.kappa.O,.kappa.O')bis[2-(2-pyridinyl-.kappa.N)benzo[b]thien-3-yl-.kappa.C]-, (OC-6-33)- (9CI) (CA INDEX NAME)



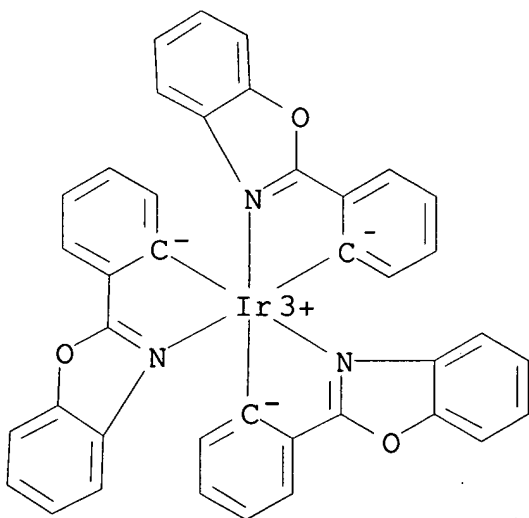
RN 343978-94-9 HCA

CN Iridium, bis[2-(2-benzoxazolyl-.kappa.N3)phenyl-.kappa.C](2,4-pentanedionato-.kappa.O,.kappa.O')-, (OC-6-33)- (9CI) (CA INDEX NAME)



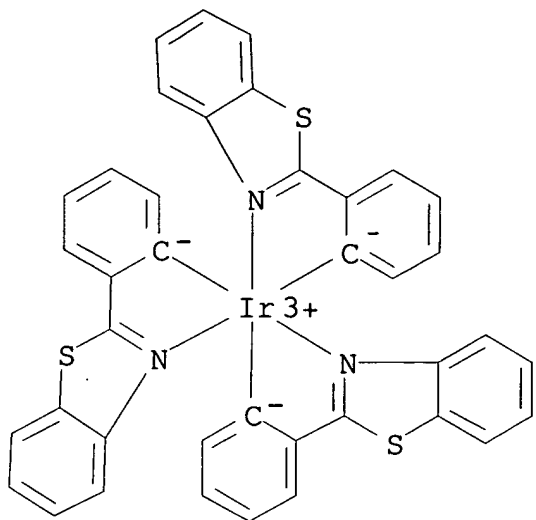
RN 468732-33-4 HCA

CN Iridium, tris[2-(2-benzoxazolyl-.kappa.N3)phenyl-.kappa.C] - (9CI)  
(CA INDEX NAME)



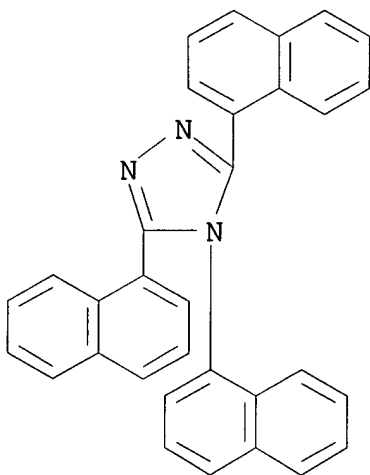
RN 468732-34-5 HCA

CN Iridium, tris[2-(2-benzothiazolyl-.kappa.N3)phenyl-.kappa.C] - (9CI)  
(CA INDEX NAME)



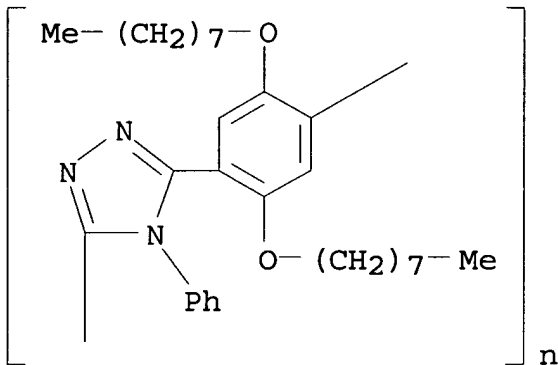
RN 477801-34-6 HCA

CN 4H-1,2,4-Triazole, 3,4,5-tri-1-naphthalenyl- (9CI) (CA INDEX NAME)



RN 477801-50-6 HCA

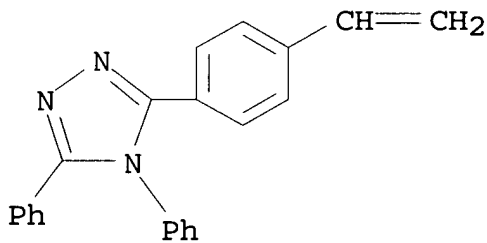
CN Poly[(4-phenyl-4H-1,2,4-triazole-3,5-diyl) [2,5-bis(octyloxy)-1,4-phenylene]] (9CI) (CA INDEX NAME)



RN 483306-57-6 HCA  
 CN 4H-1,2,4-Triazole, 3-(4-ethenylphenyl)-4,5-diphenyl-, homopolymer  
 (9CI) (CA INDEX NAME)

CM 1

CRN 483306-56-5  
 CMF C22 H17 N3



IC ICM H05B033-22  
 ICS H05B033-22; H05B033-14  
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
 Section cross-reference(s): 25  
 ST **electroluminescent** device polyfluorene deriv transporting  
 IT **Electroluminescent** devices  
 (polyfluorenylene derivs. for)  
 IT 147-14-8 725-12-2 905-62-4 **1150-62-5** 1484-12-4  
 2043-06-3 2085-33-8, Alq3 **4733-39-5** 15082-28-7  
 25067-59-8, Poly(N-vinylcarbazole) 31694-04-9 38215-36-0  
 58328-31-7 90338-04-8 **94928-86-6** 95270-88-5D,  
 Polyfluorene, derivs. **115558-41-3** 138372-67-5  
**146847-06-5** 148044-16-0 **153838-48-3**  
 163359-60-2 187877-28-7 286438-41-3, Poly(9,9-dibutyl-9H-fluorene-2,7-diyl) 286438-43-5, Poly(9,9-didecyl-9H-fluorene-2,7-

diyl) 337526-85-9 337526-87-1  
337526-88-2 337526-98-4 343978-78-9  
343978-79-0 343978-94-9 428865-68-3  
468732-33-4 468732-34-5 477801-34-6  
477801-44-8 477801-50-6 483306-57-6  
483306-62-3, Poly(9,9-dipentyl-9H-fluorene-2,7-diyl) 483306-63-4  
483306-64-5 483306-65-6 483306-66-7 483306-67-8 483306-68-9  
(org. **electroluminescent** devices using polyfluorenylene  
derivs.)

L57 ANSWER 12 OF 17 HCA COPYRIGHT 2005 ACS on STN

138:97997 Organic **electroluminescent** component. Tsuge,  
Hodaka; Komatsuzaki, Akihiro (Honda Motor Co., Ltd., Japan). Jpn.  
Kokai Tokkyo Koho JP 2003007467 A2 20030110, 14 pp. (Japanese).  
CODEN: JKXXAF. APPLICATION: JP 2001-184995 20010619.

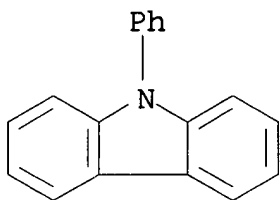
AB The invention refers to an org. **electroluminescent** device  
comprising an oxazole or a **triazole** as a electron  
transport host material, and a carbazole as a hole transport host  
material in order to obtain bipolarity of the host materials.

IT 1150-62-5 4733-39-5, Bathocuproin  
16152-10-6 31248-39-2, Platinum  
2,3,7,8,12,13,17,18-octaethyl-21H,23H porphyrin 94928-86-6  
115558-41-3 150405-69-9 153838-48-3  
172500-43-5 337526-85-9 337526-87-1,  
Iridium, bis(benzo[h]quinolin-10-yl-.kappa.C,.kappa.N)(2,4-  
pentanedionato-.kappa.O,.kappa.O')-, (OC-6-33) 337526-88-2  
337526-98-4 343978-78-9 343978-79-0  
343978-94-9, Iridium, bis[2-(2-benzoxazolyl-.kappa.N3)phenyl-  
.kappa.C]-(2,4-pentanedionato-.kappa.O,.kappa.O')-, (OC-6-33)-  
387391-50-6 405289-74-9 468732-33-4  
468732-34-5 477801-34-6 477801-35-7  
477801-40-4 477801-42-6 477801-43-7

(org. **electroluminescent** component contg. oxazole,  
**triazole** or carbazole charge transport host materials)

RN 1150-62-5 HCA

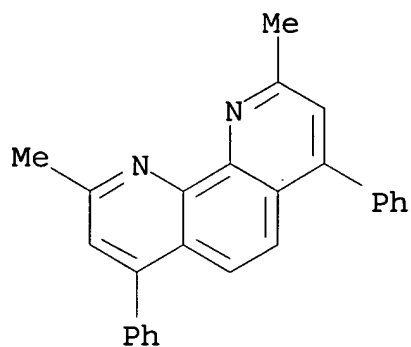
CN 9H-Carbazole, 9-phenyl- (9CI) (CA INDEX NAME)



RN 4733-39-5 HCA

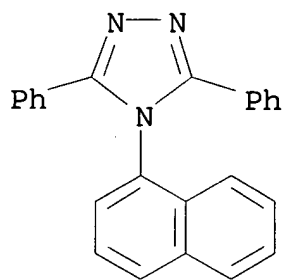
CN 1,10-Phenanthroline, 2,9-dimethyl-4,7-diphenyl- (6CI, 7CI, 8CI, 9CI)  
(CA INDEX NAME)





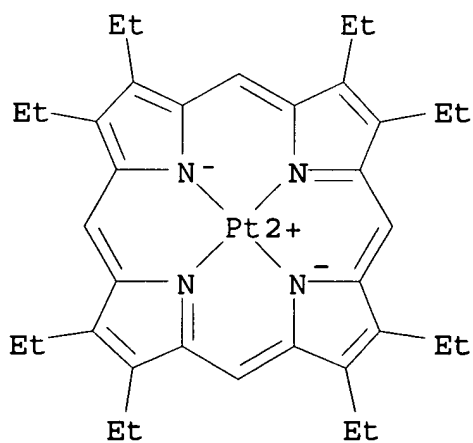
RN 16152-10-6 HCA

CN 4H-1,2,4-Triazole, 4-(1-naphthalenyl)-3,5-diphenyl- (9CI) (CA INDEX NAME)



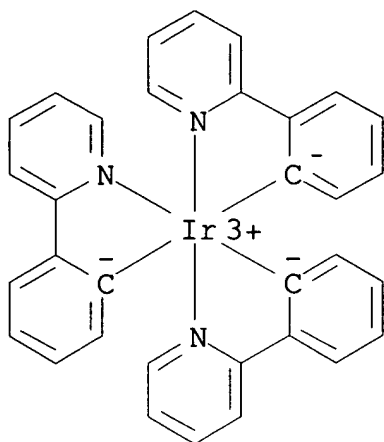
RN 31248-39-2 HCA

CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)-.kappa.N21,.kappa.N22,.kappa.N23,.kappa.N24]-, (SP-4-1)- (9CI) (CA INDEX NAME)



RN 94928-86-6 HCA

CN Iridium, tris[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]-, (OC-6-22) -  
(9CI) (CA INDEX NAME)



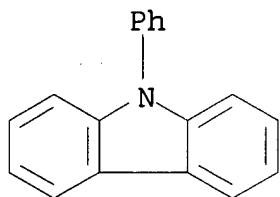
RN 115558-41-3 HCA

CN 9H-Carbazole, 9-phenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

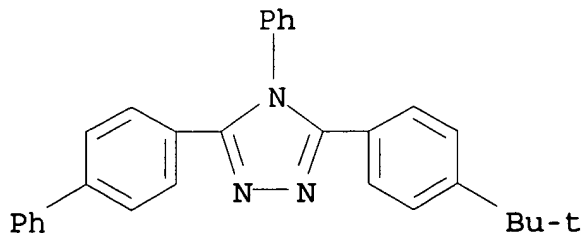
CRN 1150-62-5

CMF C18 H13 N



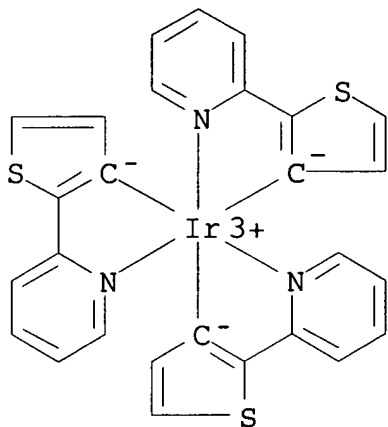
RN 150405-69-9 HCA

CN 4H-1,2,4-Triazole, 3-[1,1'-biphenyl]-4-yl-5-[4-(1,1-dimethylethyl)phenyl]-4-phenyl- (9CI) (CA INDEX NAME)



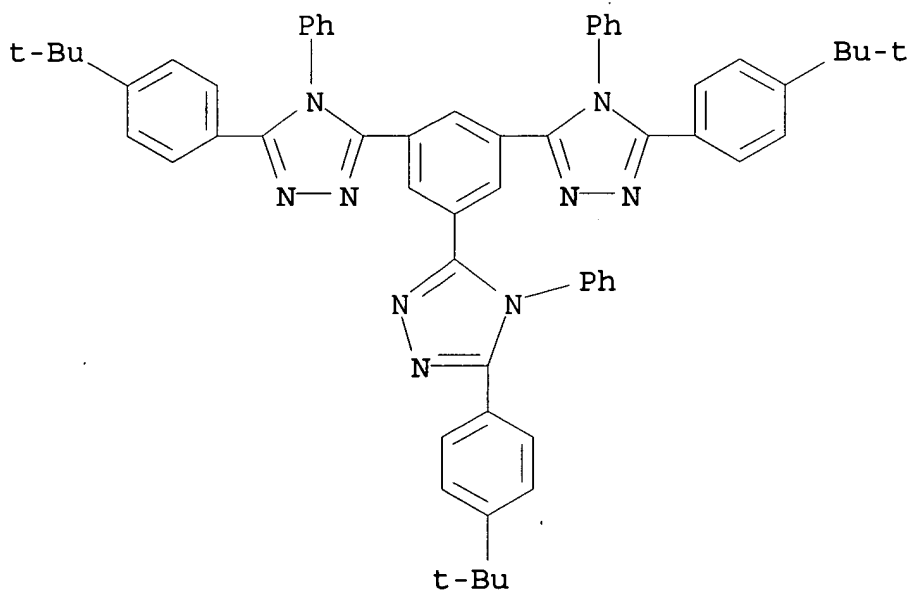
RN 153838-48-3 HCA

CN Iridium, tris[2-(2-pyridinyl-.kappa.N)-3-thienyl-.kappa.C]-, (OC-6-22)- (9CI) (CA INDEX NAME)



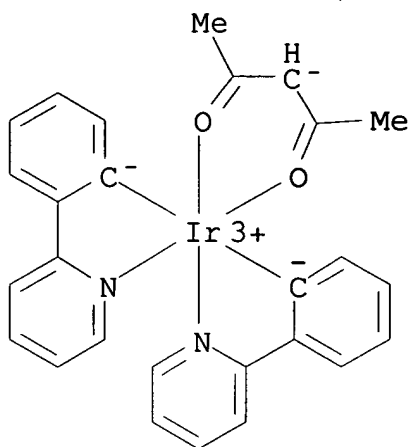
RN 172500-43-5 HCA

CN 4H-1,2,4-Triazole, 3,3',3''-(1,3,5-benzenetriyl)tris[5-[4-(1,1-dimethylethyl)phenyl]-4-phenyl]- (9CI) (CA INDEX NAME)



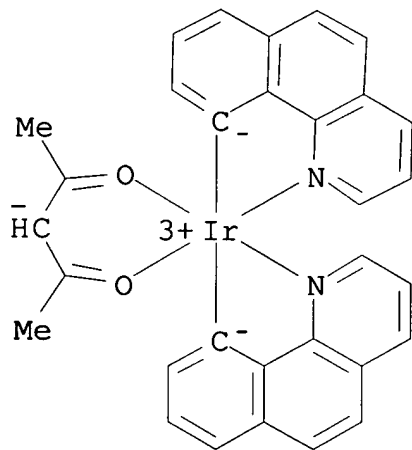
RN 337526-85-9 HCA

CN Iridium, (2,4-pentanedionato-.kappa.O,.kappa.O')bis[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]-, (OC-6-33)- (9CI) (CA INDEX NAME)



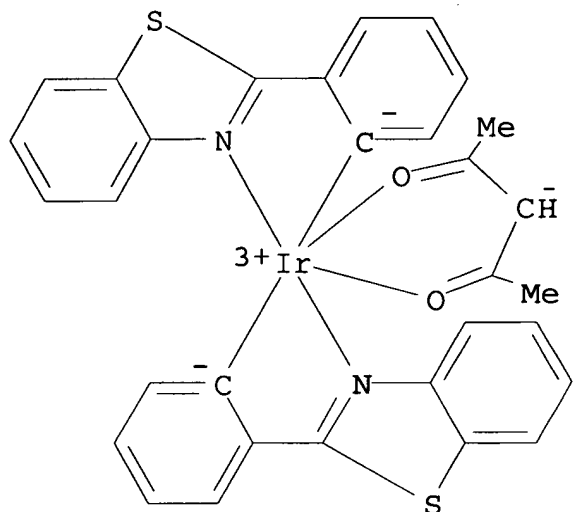
RN 337526-87-1 HCA

CN Iridium, bis(benzo[h]quinolin-10-yl-.kappa.C,.kappa.N) (2,4-pentanedionato-.kappa.O,.kappa.O')-, (OC-6-33)- (9CI) (CA INDEX NAME)



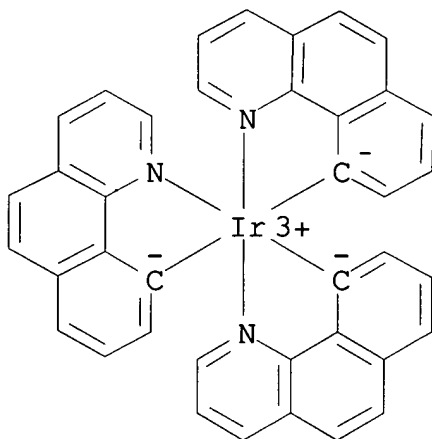
RN 337526-88-2 HCA

CN Iridium, bis[2-(2-benzothiazolyl-.kappa.N3)phenyl-.kappa.C] (2,4-pentanedionato-.kappa.O,.kappa.O')-, (OC-6-33)- (9CI) (CA INDEX NAME)



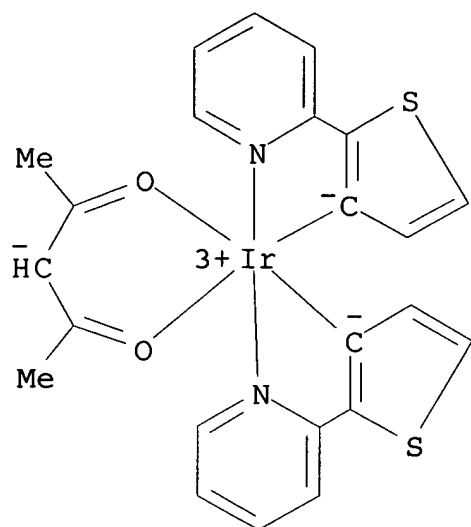
RN 337526-98-4 HCA

CN Iridium, tris(benzo[h]quinolin-10-yl-.kappa.C,.kappa.N)-, (OC-6-22)-(9CI) (CA INDEX NAME)



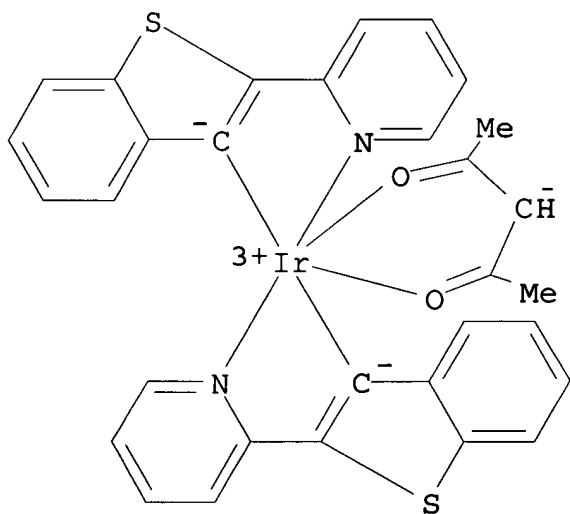
RN 343978-78-9 HCA

CN Iridium, (2,4-pentanedionato-.kappa.O,.kappa.O')bis[2-(2-pyridinyl-.kappa.N)-3-thienyl-.kappa.C]-, (OC-6-33)-(9CI) (CA INDEX NAME)



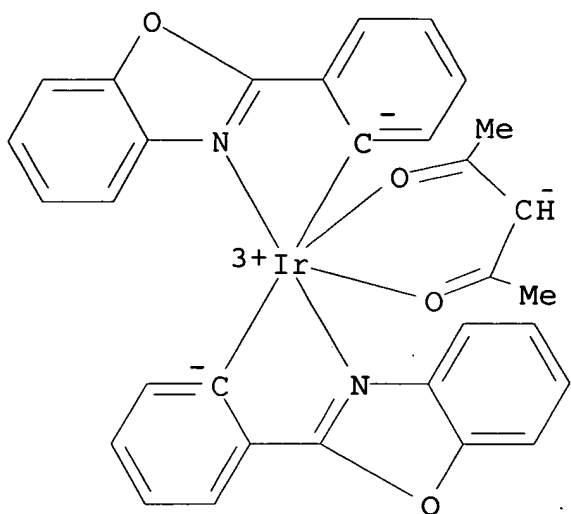
RN 343978-79-0 HCA

CN Iridium, (2,4-pentanedionato-.kappa.O,.kappa.O')bis[2-(2-pyridinyl-.kappa.N)benzo[b]thien-3-yl-.kappa.C]-, (OC-6-33)- (9CI) (CA INDEX NAME)



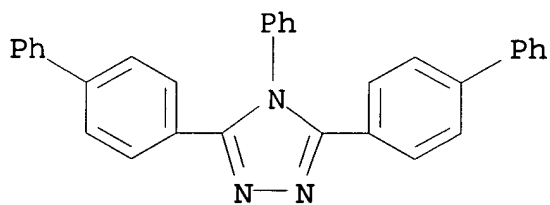
RN 343978-94-9 HCA

CN Iridium, bis[2-(2-benzoxazolyl-.kappa.N3)phenyl-.kappa.C](2,4-pentanedionato-.kappa.O,.kappa.O')-, (OC-6-33)- (9CI) (CA INDEX NAME)



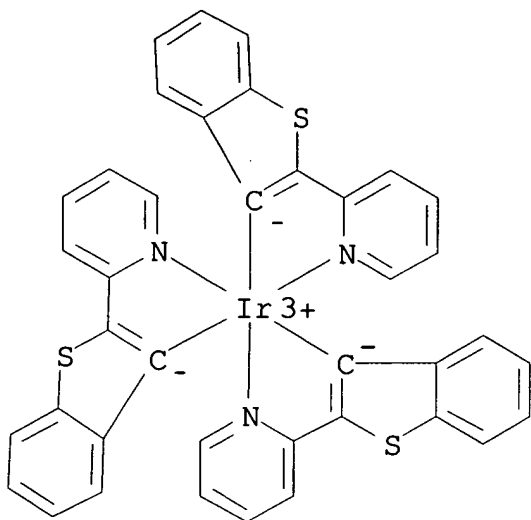
RN 387391-50-6 HCA

CN 4H-1,2,4-Triazole, 3,5-bis[1,1'-biphenyl]-4-yl-4-phenyl- (9CI) (CA INDEX NAME)

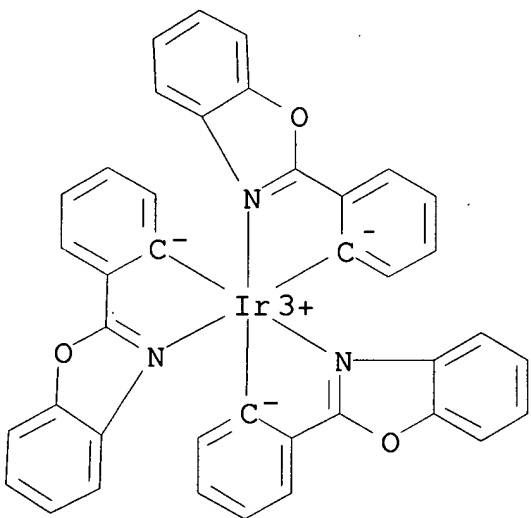


RN 405289-74-9 HCA

CN Iridium, tris[2-(2-pyridinyl-.kappa.N)benzo[b]thien-3-yl-.kappa.C] - (9CI) (CA INDEX NAME)



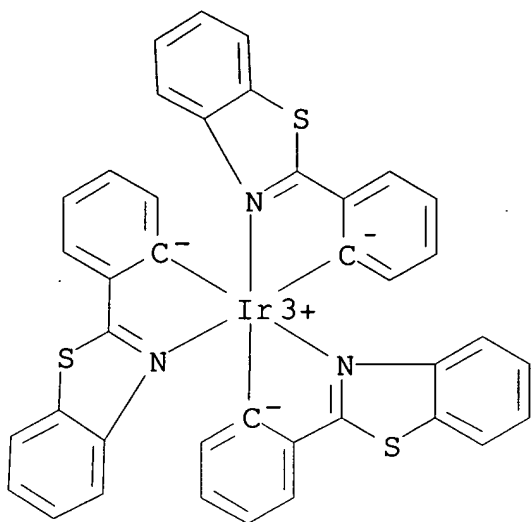
RN 468732-33-4 HCA

CN Iridium, tris[2-(2-benzoxazolyl-.kappa.N3)phenyl-.kappa.C] - (9CI)  
(CA INDEX NAME)

RN 468732-34-5 HCA

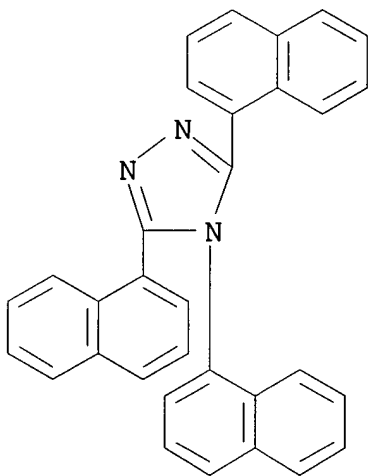
CN Iridium, tris[2-(2-benzothiazolyl-.kappa.N3)phenyl-.kappa.C] - (9CI)  
(CA INDEX NAME)





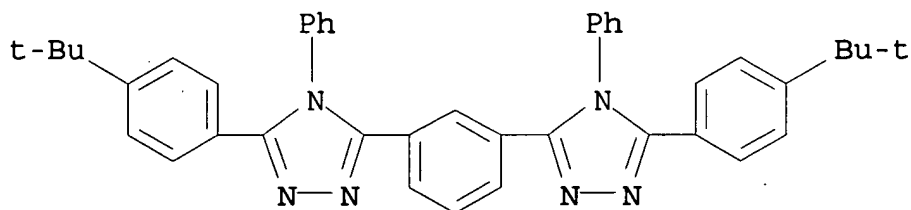
RN 477801-34-6 HCA

CN 4H-1,2,4-Triazole, 3,4,5-tri-1-naphthalenyl- (9CI) (CA INDEX NAME)

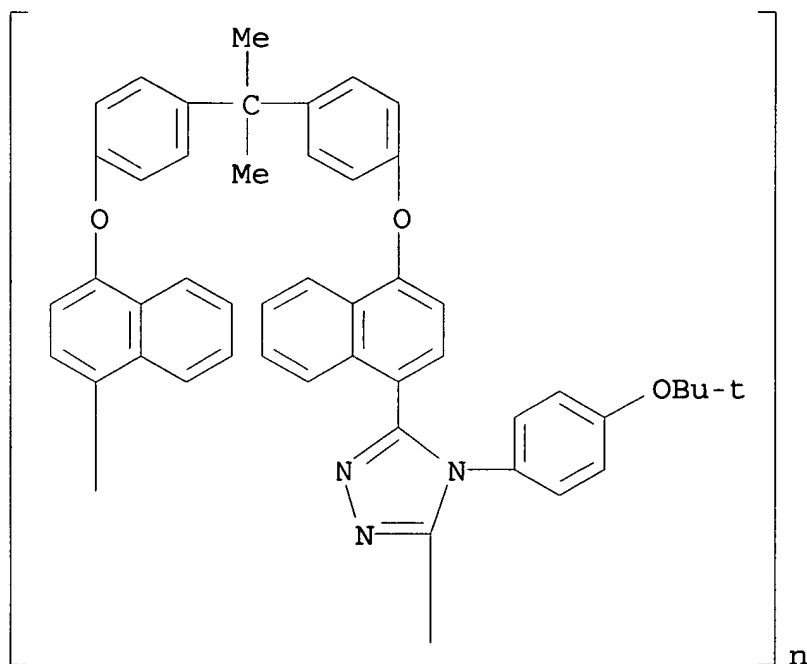


RN 477801-35-7 HCA

CN 4H-1,2,4-Triazole, 3,3'-(1,3-phenylene)bis[5-[4-(1,1-dimethylethyl)phenyl]-4-phenyl- (9CI) (CA INDEX NAME)



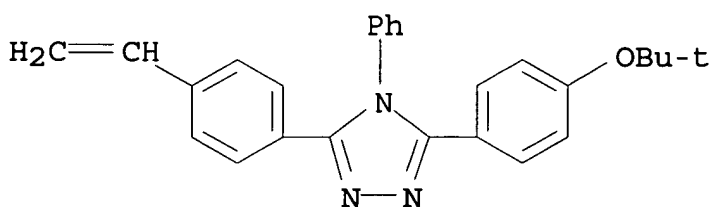
RN 477801-40-4 HCA  
 CN Poly[[4-[4-(1,1-dimethylethoxy)phenyl]-4H-1,2,4-triazole-3,5-diyl]-1,4-naphthalenediyl]-1,4-phenylene(1-methylethylidene)-1,4-phenyleneoxy-1,4-naphthalenediyl] (9CI) (CA INDEX NAME)



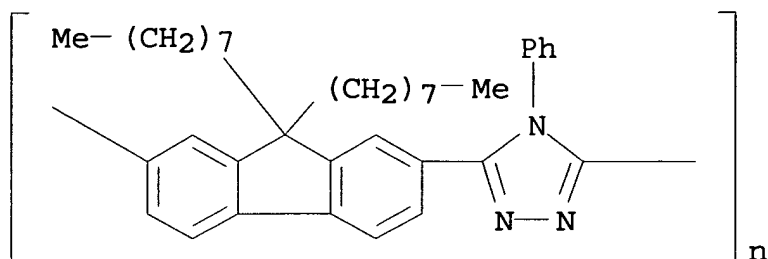
RN 477801-42-6 HCA  
 CN 4H-1,2,4-Triazole, 3-[4-(1,1-dimethylethoxy)phenyl]-5-(4-ethenylphenyl)-4-phenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 477801-41-5  
 CMF C26 H25 N3 O



RN 477801-43-7 HCA  
 CN Poly[(4-phenyl-4H-1,2,4-triazole-3,5-diyl)(9,9-dioctyl-9H-fluorene-2,7-diyl)] (9CI) (CA INDEX NAME)



- IC ICM H05B033-14  
ICS C09K011-06; H05B033-22
- CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
- ST **electroluminescent** device bipolarity **triazole**  
oxazole carbazole charge transport
- IT **Electroluminescent** devices  
Electron transport  
Hole transport  
(org. **electroluminescent** component contg. oxazole,  
**triazole** or carbazole charge transport host materials)
- IT 86-74-8, Carbazole 905-62-4, 2,5-Bis(1-naphthyl)-1,3,4-  
**oxadiazole** 1150-62-5 1484-12-4, N-Methyl  
carbazole 1484-13-5 2085-33-8, Aluminum tris(8-  
hydroxyquinolinato) **4733-39-5**, Bathocuproin  
**16152-10-6 31248-39-2**, Platinum  
2,3,7,8,12,13,17,18-octaethyl-21H,23H porphyrin 51590-15-9  
58328-31-7 **94928-86-6 115558-41-3** 118624-14-9  
138372-67-5 148044-16-0 **150405-69-9 153838-48-3**  
**172500-43-5 337526-85-9 337526-87-1**,  
Iridium, bis(benzo[h]quinolin-10-yl-.kappa.C,.kappa.N)(2,4-  
pentanedionato-.kappa.O,.kappa.O')-, (OC-6-33) **337526-88-2**  
**337526-98-4 343978-78-9 343978-79-0**  
**343978-94-9**, Iridium, bis[2-(2-benzoxazolyl-.kappa.N3)phenyl-  
.kappa.C]-(2,4-pentanedionato-.kappa.O,.kappa.O')-, (OC-6-33)-  
**387391-50-6 405289-74-9 468732-33-4**  
**468732-34-5 477801-34-6 477801-35-7**  
**477801-40-4 477801-42-6 477801-43-7**  
(org. **electroluminescent** component contg. oxazole,  
**triazole** or carbazole charge transport host materials)
- L57 ANSWER 13 OF 17 HCA COPYRIGHT 2005 ACS on STN
- 138:17926 Organic **electroluminescent** device. Tsuge, Hodaka;  
Komatsuzaki, Akihiro (Honda Motor Co., Ltd., Japan). Jpn. Kokai  
Tokkyo Koho JP 2002352957 A2 **20021206**, 15 pp. (Japanese).  
CODEN: JKXXAF. APPLICATION: JP 2001-154291 20010523.
- AB The invention relates to an org. **electroluminescent** device

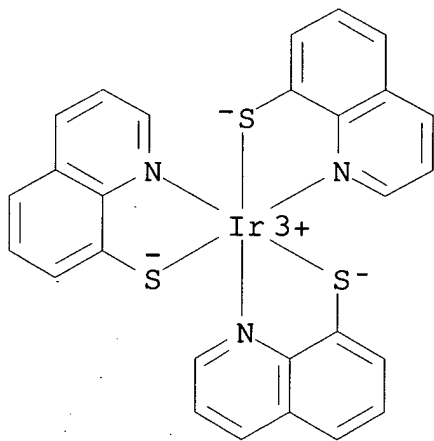
comprising an host-guest **electroluminescent** layer prepd. by a wet method, wherein the compd. contg. 1,3,4-oxadiazol or 1,3,4-triazol group is used as a host agent for facilitating the film forming by a wet coating technique.

IT 15663-35-1 16152-10-6 31248-39-2  
 94928-86-6 150405-69-9 172500-43-5  
 337526-85-9 337526-87-1 337526-98-4  
 337527-04-5 343978-78-9 343978-79-0  
 343978-94-9 387391-50-6 405289-74-9  
 468732-33-4 468732-34-5 477801-34-6  
 477801-35-7 477801-36-8, Poly(9-phenyl-9H-carbazole-2,7-diyl) 477801-40-4 477801-42-6  
 477801-43-7 477801-50-6 477801-51-7  
 477801-52-8 477801-53-9 477801-54-0  
 477801-55-1

(org. **electroluminescent** device having **electroluminescent** layer prepd. by wet coating method)

RN 15663-35-1 HCA

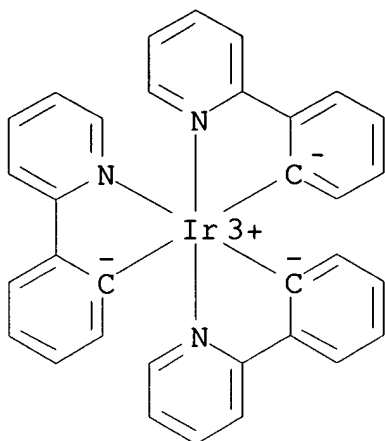
CN Iridium, tris(8-quinolinethiolato-.kappa.N1,.kappa.S8)-, (OC-6-21)-(9CI) (CA INDEX NAME)



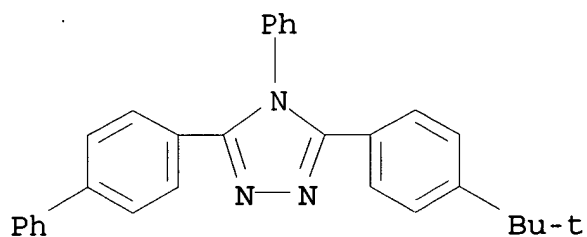
RN 16152-10-6 HCA

CN 4H-1,2,4-Triazole, 4-(1-naphthalenyl)-3,5-diphenyl- (9CI) (CA INDEX NAME)

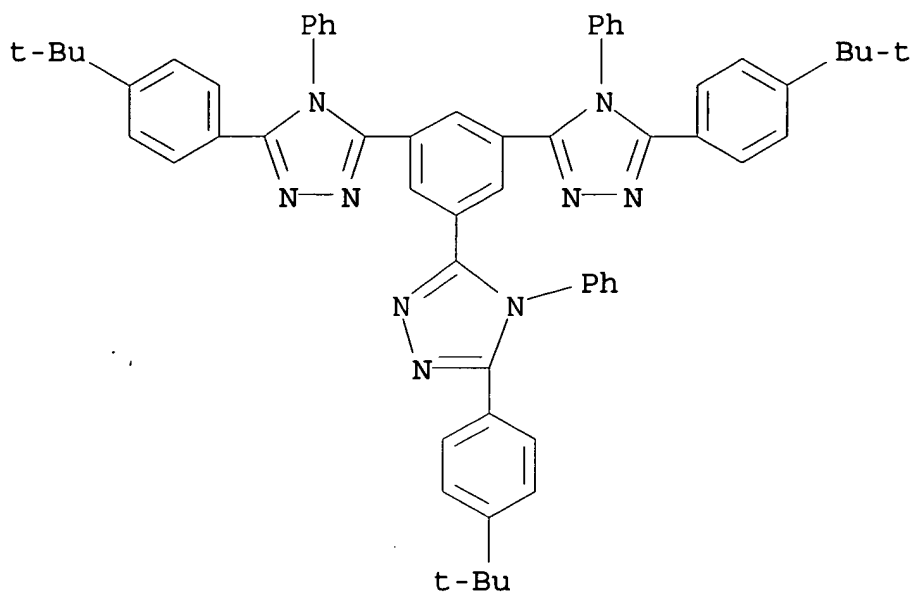




RN 150405-69-9 HCA  
 CN 4H-1,2,4-Triazole, 3-[1,1'-biphenyl]-4-yl-5-[4-(1,1-dimethylethyl)phenyl]-4-phenyl- (9CI) (CA INDEX NAME)

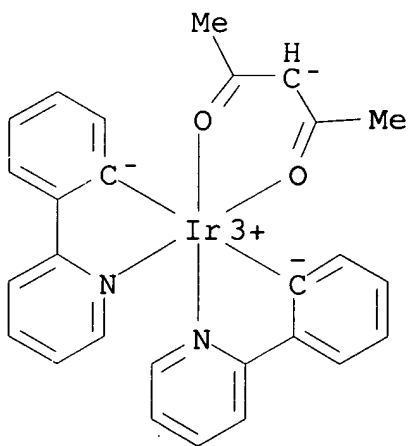


RN 172500-43-5 HCA  
 CN 4H-1,2,4-Triazole, 3,3',3''-(1,3,5-benzenetriyl)tris[5-[4-(1,1-dimethylethyl)phenyl]-4-phenyl- (9CI) (CA INDEX NAME)



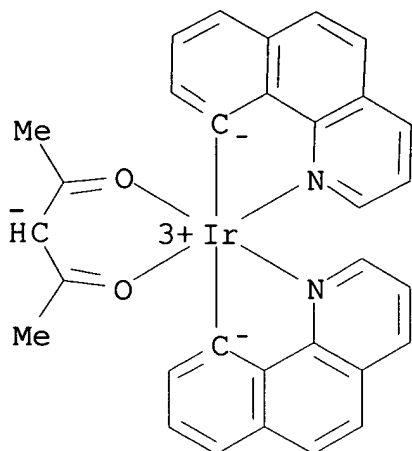
RN 337526-85-9 HCA

CN Iridium, (2,4-pentanedionato-.kappa.O,.kappa.O')bis[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]-, (OC-6-33)- (9CI) (CA INDEX NAME)



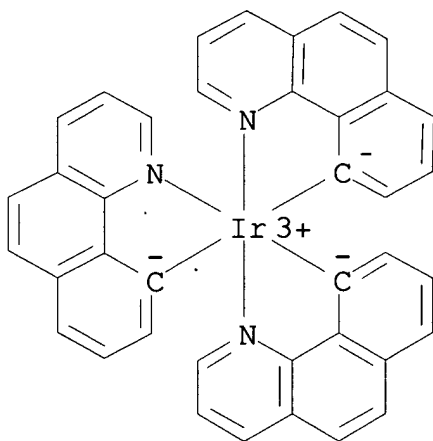
RN 337526-87-1 HCA

CN Iridium, bis(benzo[h]quinolin-10-yl-.kappa.C,.kappa.N) (2,4-pentanedionato-.kappa.O,.kappa.O')-, (OC-6-33)- (9CI) (CA INDEX NAME)



RN 337526-98-4 HCA

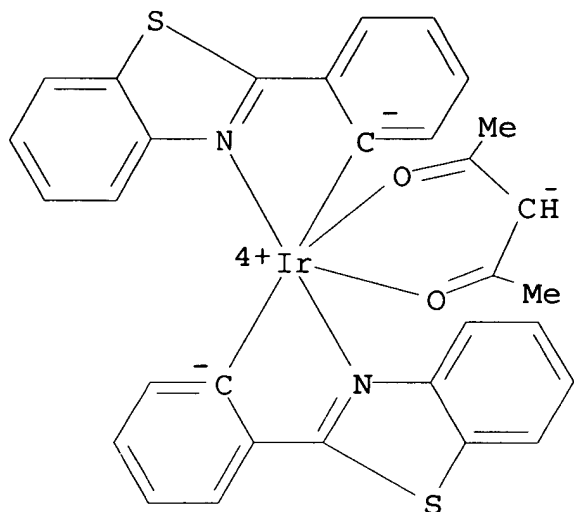
CN Iridium, tris(benzo[h]quinolin-10-yl-.kappa.C,.kappa.N)-, (OC-6-22)-(9CI) (CA INDEX NAME)



RN 337527-04-5 HCA

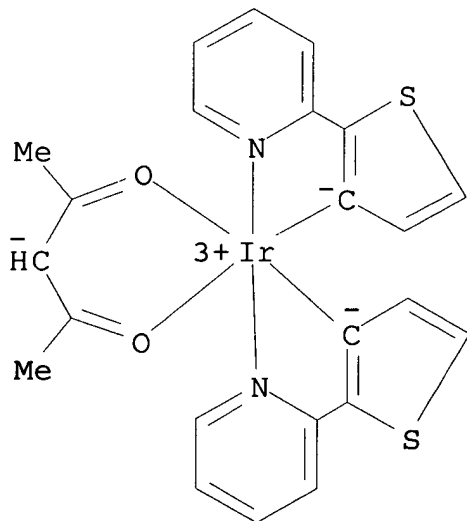
CN Iridium(1+), bis[2-(2-benzothiazolyl-.kappa.N3)phenyl-.kappa.C](2,4-pentanedionato-.kappa.O,.kappa.O')-, (OC-6-33)-(9CI) (CA INDEX NAME)





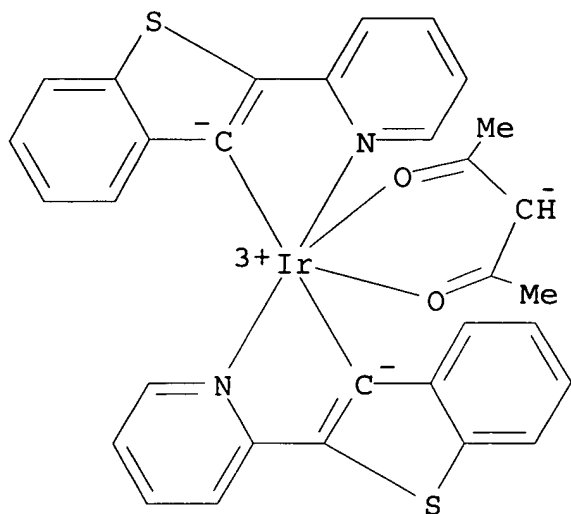
RN 343978-78-9 HCA

CN Iridium, (2,4-pentanedionato-.kappa.O,.kappa.O')bis[2-(2-pyridinyl-.kappa.N)-3-thienyl-.kappa.C]-, (OC-6-33)- (9CI) (CA INDEX NAME)



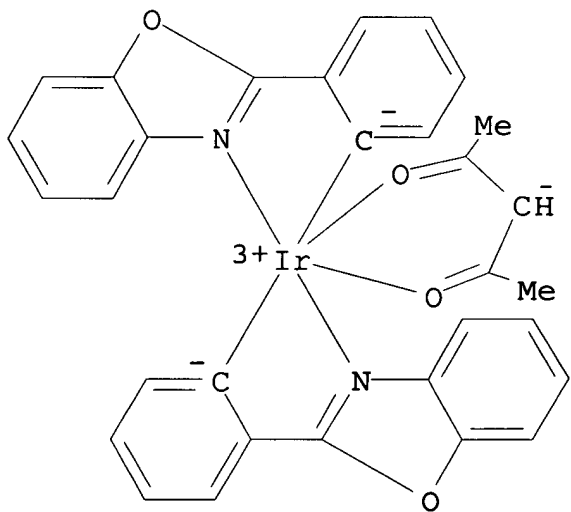
RN 343978-79-0 HCA

CN Iridium, (2,4-pentanedionato-.kappa.O,.kappa.O')bis[2-(2-pyridinyl-.kappa.N)benzo[b]thien-3-yl-.kappa.C]-, (OC-6-33)- (9CI) (CA INDEX NAME)



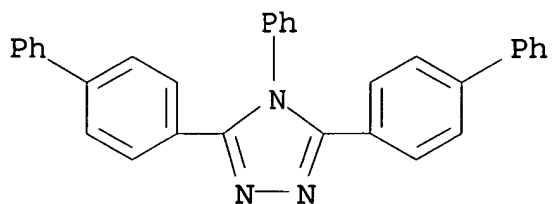
RN 343978-94-9 HCA

CN Iridium, bis[2-(2-benzoxazolyl-.kappa.N3)phenyl-.kappa.C] (2,4-pentanedionato-.kappa.O, .kappa.O')-, (OC-6-33)- (9CI) (CA INDEX NAME)



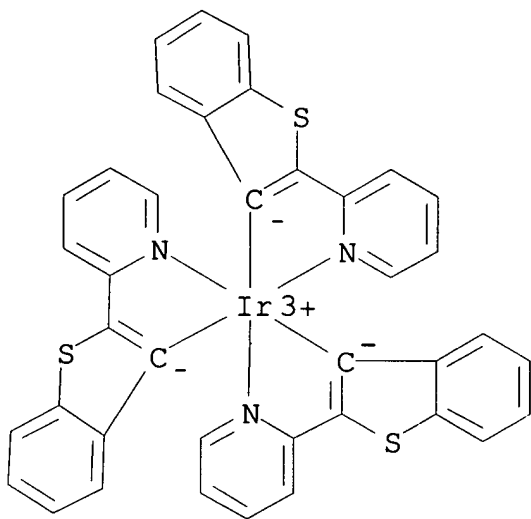
RN 387391-50-6 HCA

CN 4H-1,2,4-Triazole, 3,5-bis[1,1'-biphenyl]-4-yl-4-phenyl- (9CI) (CA INDEX NAME)



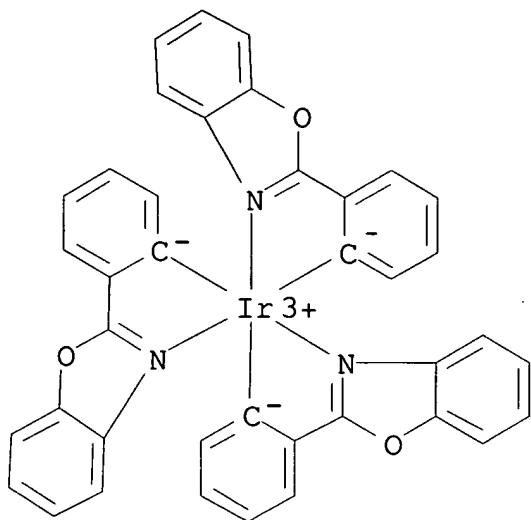
RN 405289-74-9 HCA

CN Iridium, tris[2-(2-pyridinyl-.kappa.N)benzo[b]thien-3-yl-.kappa.C] - (9CI) (CA INDEX NAME)



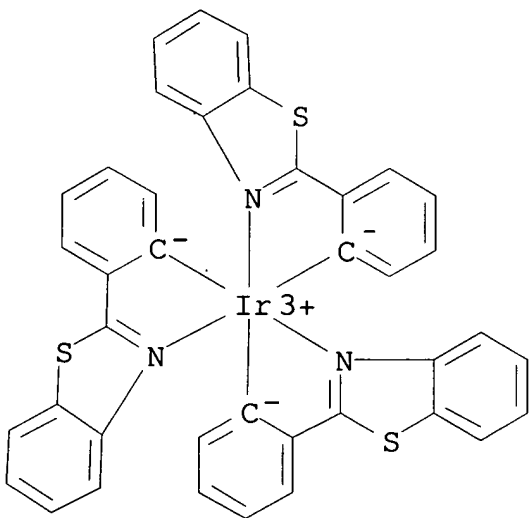
RN 468732-33-4 HCA

CN Iridium, tris[2-(2-benzoxazolyl-.kappa.N3)phenyl-.kappa.C] - (9CI) (CA INDEX NAME)



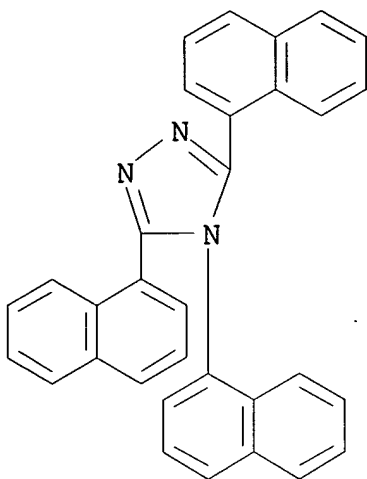
RN 468732-34-5 HCA

CN Iridium, tris[2-(2-benzothiazolyl-.kappa.N3)phenyl-.kappa.C] - (9CI)  
(CA INDEX NAME)

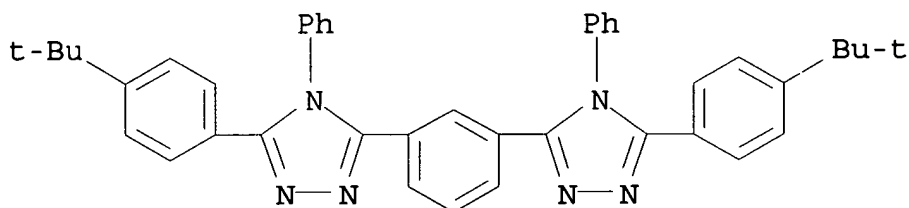


RN 477801-34-6 HCA

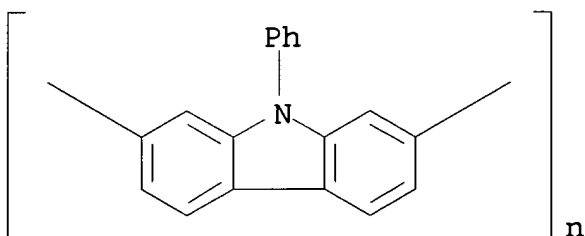
CN 4H-1,2,4-Triazole, 3,4,5-tri-1-naphthalenyl- (9CI) (CA INDEX NAME)



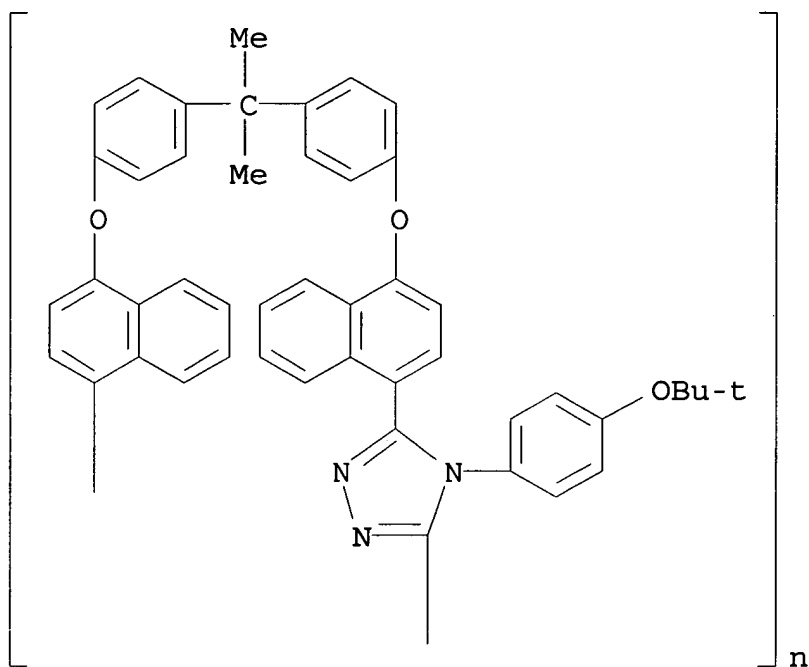
RN 477801-35-7 HCA  
 CN 4H-1,2,4-Triazole, 3,3'-(1,3-phenylene)bis[5-[4-(1,1-dimethylethyl)phenyl]-4-phenyl- (9CI) (CA INDEX NAME)



RN 477801-36-8 HCA  
 CN Poly(9-phenyl-9H-carbazole-2,7-diyl) (9CI) (CA INDEX NAME)



RN 477801-40-4 HCA  
 CN Poly[[4-[4-(1,1-dimethylethoxy)phenyl]-4H-1,2,4-triazole-3,5-diyl]-1,4-naphthalenediyl]-1,4-phenylene(1-methylethylidene)-1,4-phenyleneoxy-1,4-naphthalenediyl] (9CI) (CA INDEX NAME)



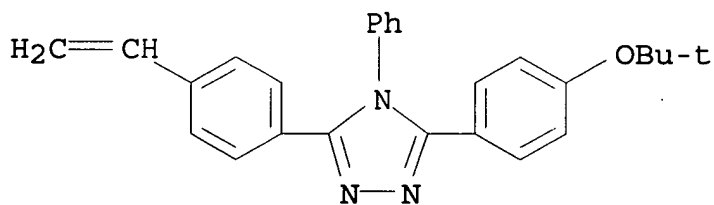
RN 477801-42-6 HCA

CN 4H-1,2,4-Triazole, 3-[4-(1,1-dimethylethoxy)phenyl]-5-(4-ethenylphenyl)-4-phenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

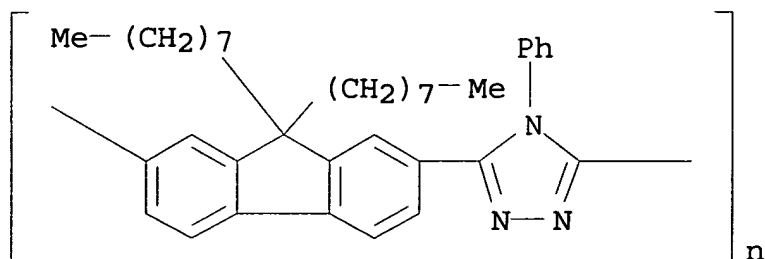
CRN 477801-41-5

CMF C26 H25 N3 O



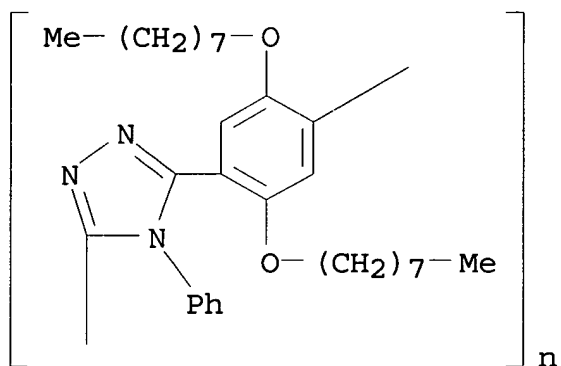
RN 477801-43-7 HCA

CN Poly[(4-phenyl-4H-1,2,4-triazole-3,5-diyl)(9,9-dioctyl-9H-fluorene-2,7-diyl)] (9CI) (CA INDEX NAME)



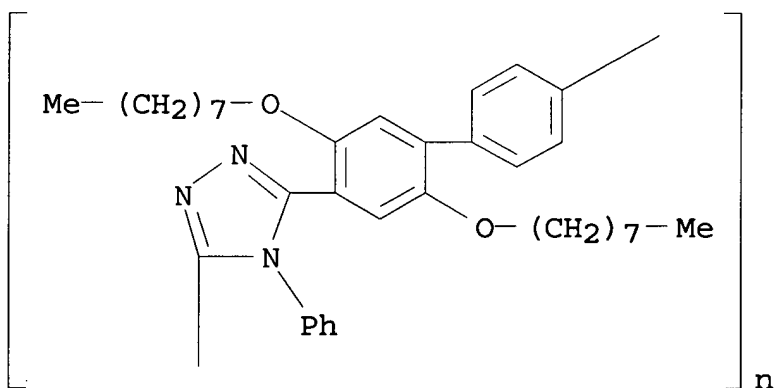
RN 477801-50-6 HCA

CN Poly[(4-phenyl-4H-1,2,4-triazole-3,5-diyl) [2,5-bis(octyloxy)-1,4-phenylene]] (9CI) (CA INDEX NAME)



RN 477801-51-7 HCA

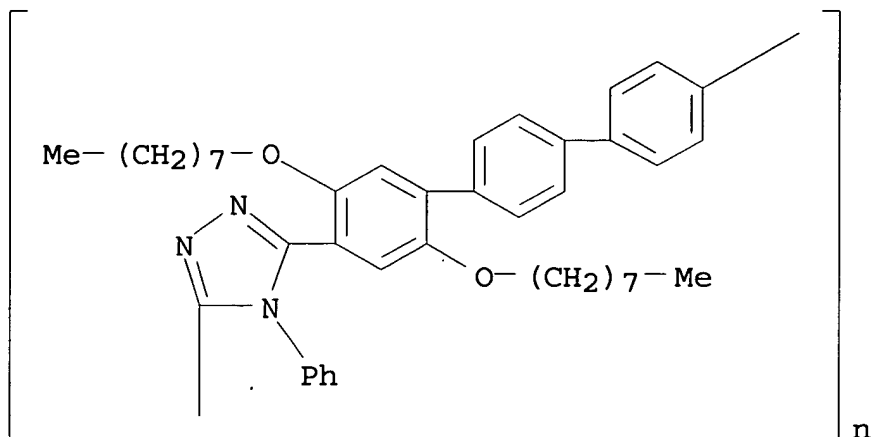
CN Poly[(4-phenyl-4H-1,2,4-triazole-3,5-diyl) [2,5-bis(octyloxy) [1,1'-biphenyl]-4,4'-diyl]] (9CI) (CA INDEX NAME)



RN 477801-52-8 HCA

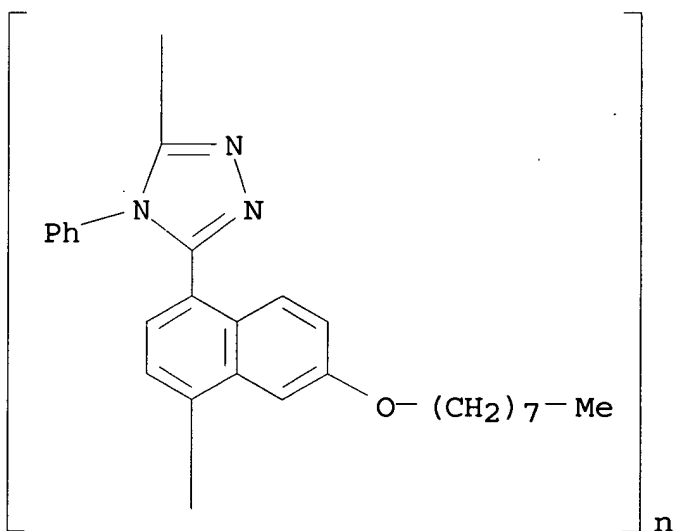
CN Poly[(4-phenyl-4H-1,2,4-triazole-3,5-diyl) [2,5-bis(octyloxy) [1,1':4',1''-terphenyl]-4,4''-diyl]] (9CI) (CA INDEX NAME)

NAME)



RN 477801-53-9 HCA

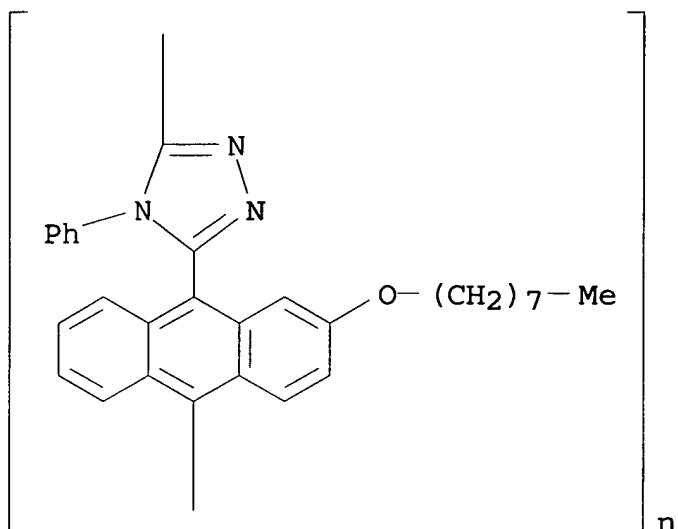
CN Poly[(4-phenyl-4H-1,2,4-triazole-3,5-diyl) [6-(octyloxy)-1,4-naphthalenediyl]] (9CI) (CA INDEX NAME)



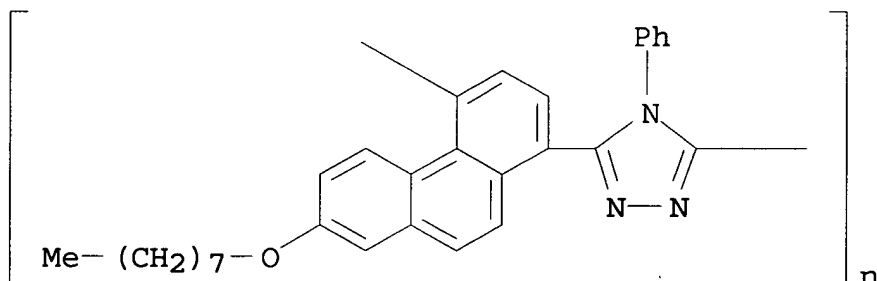
RN 477801-54-0 HCA

CN Poly[(4-phenyl-1H-1,2,4-triazole-3,5-diyl) [2-(octyloxy)-9,10-anthracenediyl]] (9CI) (CA INDEX NAME)





RN 477801-55-1 HCA  
 CN Poly[(4-phenyl-4H-1,2,4-triazole-3,5-diyl) [7-(octyloxy)-1,4-phenanthrenediyl]] (9CI) (CA INDEX NAME)



IC ICM H05B033-14  
 ICS C09K011-06; H05B033-10; H05B033-22  
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
 ST org **electroluminescent** device oxadiazol triazol wet coating  
 IT **Electroluminescent** devices  
     (org. **electroluminescent** device having  
     **electroluminescent** layer prepd. by wet coating method)  
 IT Coating process  
     (spin; org. **electroluminescent** device having  
     **electroluminescent** layer prepd. by wet coating method)  
 IT 905-62-4 2043-06-3 15082-28-7 **15663-35-1**  
**16152-10-6 31248-39-2 94928-86-6**

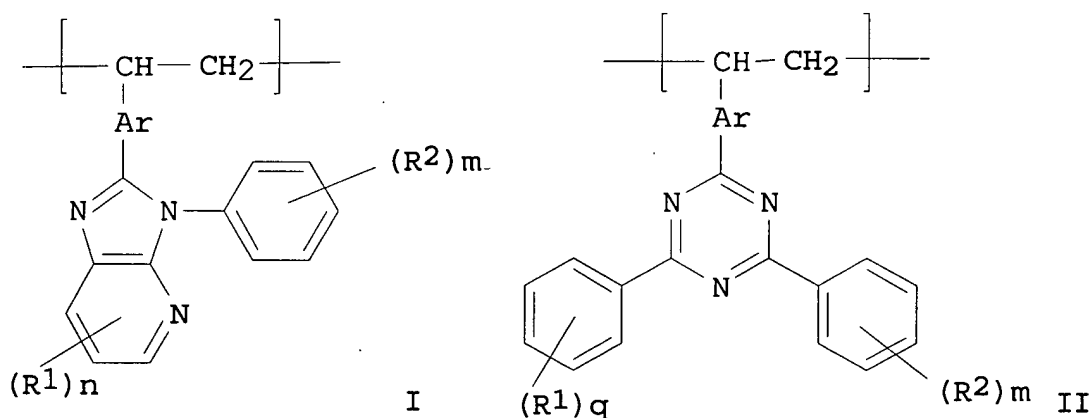
138372-67-5 148044-16-0 150405-69-9 172500-43-5  
 337526-85-9 337526-87-1 337526-98-4  
 337527-04-5 343978-78-9 343978-79-0  
 343978-94-9 387391-50-6 405289-74-9  
 428865-68-3 468732-33-4 468732-34-5  
 477801-34-6 477801-35-7 477801-36-8,  
 Poly(9-phenyl-9H-carbazole-2,7-diyl) 477801-37-9 477801-39-1  
 477801-40-4 477801-42-6 477801-43-7  
 477801-44-8 477801-45-9 477801-46-0 477801-47-1 477801-48-2  
 477801-49-3 477801-50-6 477801-51-7  
 477801-52-8 477801-53-9 477801-54-0  
 477801-55-1

(org. electroluminescent device having  
 electroluminescent layer prep'd. by wet coating method)

L57 ANSWER 14 OF 17 HCA COPYRIGHT 2005 ACS on STN

136:377202 **Light-emitting** device and material  
 therefor. Okada, Hisashi; Ise, Toshihiro; Mishima, Masayuki;  
 Taguchi, Toshiki (Fuji Photo Film Co., Ltd., Japan). U.S. Pat.  
 Appl. Publ. US 2002055014 A1 **20020509**, 91 pp. (English).  
 CODEN: USXXCO. APPLICATION: US 2001-935711 20010824. PRIORITY: JP  
 2000-254171 20000824; JP 2001-38718 20010215; JP 2001-236419  
 20010803.

GI



AB **Light-emitting** devices comprising a pair of  
 electrodes formed on a substrate and org. comp'd. layers comprising a  
**light-emitting** layer provided in between the  
 electrodes are described in which .gtoreq.1 of the org. comp'd.  
 layers comprises a heterocyclic comp'd. having .gtoreq.2 atoms and a  
 phosphorescent comp'd.; polymers with repeating units described by  
 the general formulas I and II (Ar = arylene or divalent heterocyclic

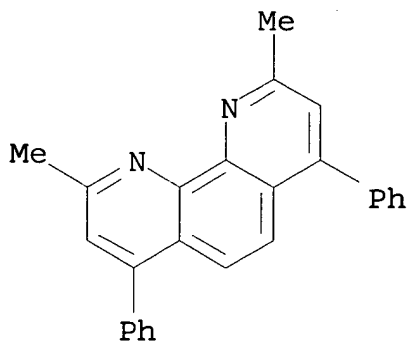
group; R1 and R2 = independently selected H or substituent; n = 0-3; q = 0-5; and m = 0-5), which may be employed as the heterocyclic compds. in the devices, are also described. The devices may also employ polymers of heterocyclic compds. from which AR is absent. The phosphorescent compd. may be an org. metal complex.

IT 4733-39-5, Bathocuproine 94928-86-6  
153838-48-3 343978-78-9 350025-78-4  
359014-69-0 370878-69-6

(light-emitting devices with emitting layers including heterocyclic compds. and phosphorescent materials and heterocycle deriv. polymers for them)

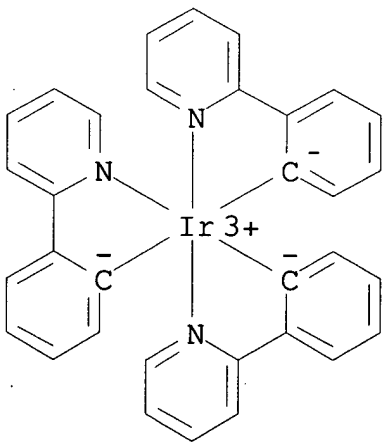
RN 4733-39-5 HCA

CN 1,10-Phenanthroline, 2,9-dimethyl-4,7-diphenyl- (6CI, 7CI, 8CI, 9CI)  
(CA INDEX NAME)



RN 94928-86-6 HCA

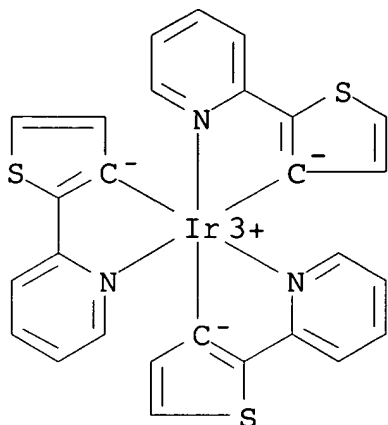
CN Iridium, tris[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]-, (OC-6-22)-  
(9CI) (CA INDEX NAME)



RN 153838-48-3 HCA

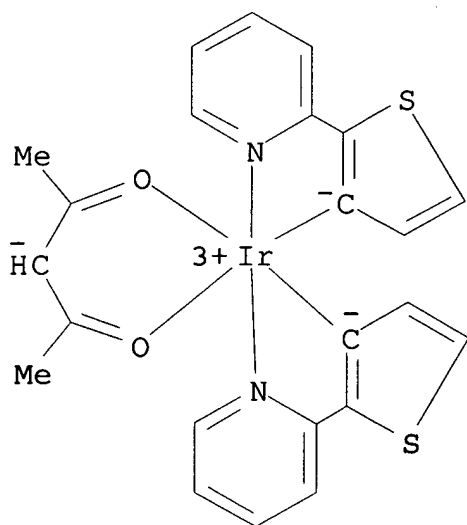
CN Iridium, tris[2-(2-pyridinyl-.kappa.N)-3-thienyl-.kappa.C]-,

(OC-6-22) - (9CI) (CA INDEX NAME)



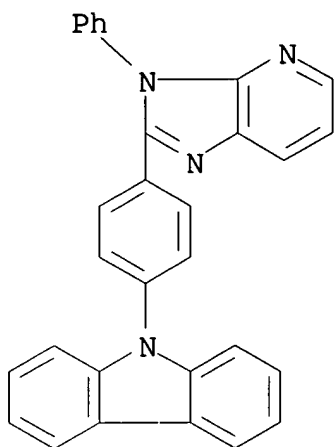
RN 343978-78-9 HCA

CN Iridium, (2,4-pentanedionato-.kappa.O,.kappa.O')bis[2-(2-pyridinyl-.kappa.N)-3-thienyl-.kappa.C]-, (OC-6-33) - (9CI) (CA INDEX NAME)



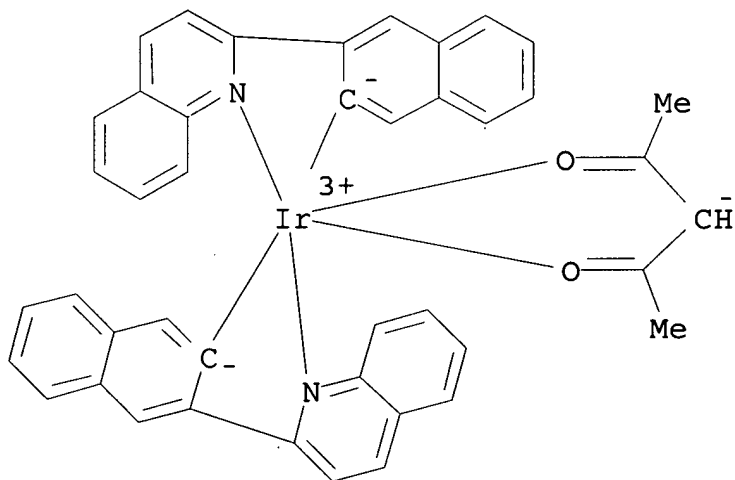
RN 350025-78-4 HCA

CN 9H-Carbazole, 9-[4-(3-phenyl-3H-imidazo[4,5-b]pyridin-2-yl)phenyl] - (9CI) (CA INDEX NAME)



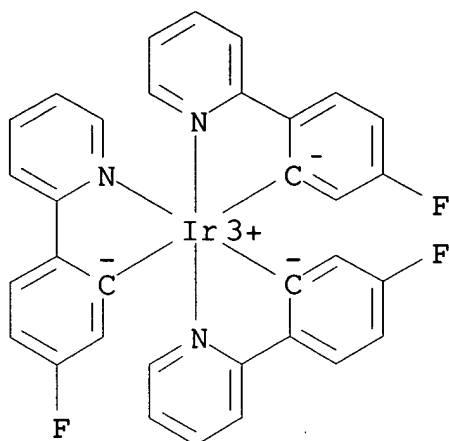
RN 359014-69-0 HCA

CN Iridium, (2,4-pentanedionato-.kappa.O,.kappa.O')bis[3-(2-quinolinyl-.kappa.N)-2-naphthalenyl-.kappa.C] - (9CI) (CA INDEX NAME)

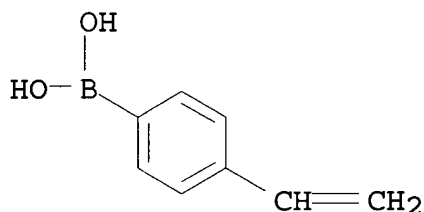


RN 370878-69-6 HCA

CN Iridium, tris[5-fluoro-2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C] -, (OC-6-22) - (9CI) (CA INDEX NAME)



IT 2156-04-9, 4-Vinylphenylboronic acid  
 (light-emitting devices with emitting layers  
 including heterocyclic compds. and phosphorescent materials and  
 heterocycle deriv. polymers for them)  
 RN 2156-04-9 HCA  
 CN Boronic acid, (4-ethenylphenyl)- (9CI) (CA INDEX NAME)



IC ICM H05B033-14  
 ICS C08F026-06  
 INCL 428690000  
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related  
 Properties)  
 Section cross-reference(s): 27, 28, 38, 76  
 ST electroluminescent device heterocycle phosphorescent compd  
 mixt active layer; polymer heterocycle phosphorescent compd mixt  
 active layer electroluminescent device  
 IT Phosphorescent substances  
 (light-emitting devices with emitting layers  
 including heterocyclic compds. and phosphorescent materials and  
 heterocycle deriv. polymers for them)  
 IT Polycarbonates, uses  
 (light-emitting devices with emitting layers  
 including heterocyclic compds. and phosphorescent materials and  
 heterocycle deriv. polymers for them)

IT **Electroluminescent devices**

(org.; **light-emitting** devices with emitting layers including heterocyclic compds. and phosphorescent materials and heterocycle deriv. polymers for them)

IT 147-14-8, Copper phthalocyanine 2085-33-8, Tris(8-hydroxyquinolinato)aluminum **4733-39-5**, Bathocuproine 7429-90-5, Aluminum, uses 7789-24-4, Lithium fluoride, uses 12033-89-5, Silicon nitride, uses 15082-28-7 24964-91-8, Tris(4-bromophenyl)aminium hexachloroantimonate 25067-59-8, Poly(N-vinylcarbazole) 37271-44-6 38215-36-0, Coumarin-6 50926-11-9, ITO 51269-91-1 58328-31-7 65181-78-4, N,N'-Bis(3-methylphenyl)-N,N'-diphenylbenzidine **94928-86-6** **153838-48-3** 173394-18-8 182069-71-2 **343978-78-9** 350025-75-1 350025-76-2 **350025-78-4** 350025-79-5 **359014-69-0** **370878-69-6** 377092-13-2 422574-54-7, Silicon nitride oxide (SiN<sub>0.3</sub>O<sub>0.7</sub>) 422574-58-1 422574-60-5 422574-62-7 422574-66-1 422574-67-2 422574-68-3 422574-70-7 422574-72-9 422574-73-0 422574-74-1 422574-76-3 422574-77-4 422574-78-5 422574-84-3 422574-85-4 422574-86-5 422574-87-6 422574-88-7 422574-89-8 422574-90-1 423117-91-3 423117-92-4 423117-94-6 423117-96-8 423117-97-9 423117-99-1 423118-00-7 423118-01-8 423118-03-0 423118-05-2 423721-05-5 423721-07-7 423721-09-9

(**light-emitting** devices with emitting layers including heterocyclic compds. and phosphorescent materials and heterocycle deriv. polymers for them)

IT 313950-73-1P 328238-10-4P 358974-66-0P 377092-02-9P 377092-06-3P 377092-10-9P 422574-56-9P 422574-64-9P 422574-83-2P

(**light-emitting** devices with emitting layers including heterocyclic compds. and phosphorescent materials and heterocycle deriv. polymers for them)

IT 62-53-3, Aniline, reactions 95-53-4, o-Toluidine, reactions 104-15-4, p-Toluenesulfonic acid, reactions 108-44-1, m-Toluidine, reactions 578-66-5, 8-Aminoquinoline 586-75-4, 4-Bromobenzoyl chloride 603-35-0, Triphenylphosphine, reactions 769-92-6 876-08-4, 4-Chloromethylbenzoyl chloride 2039-82-9, 4-Bromostyrene **2156-04-9**, 4-Vinylphenylboronic acid 2351-37-3, 4,4'-Biphenyldicarbonyl chloride 3842-55-5, 2-Chloro-4,6-diphenyl-1,3,5-triazine 4422-95-1, 1,3,5-Benzenetricarbonyl trichloride 5470-18-8, 2-Chloro-3-nitropyridine

(**light-emitting** devices with emitting layers including heterocyclic compds. and phosphorescent materials and heterocycle deriv. polymers for them)

IT 34949-41-2P 54696-64-9P 54696-67-2P 78750-58-0P 350025-73-9P 350025-74-0P 377092-01-8P 377092-03-0P 377092-04-1P 377092-05-2P 377092-07-4P 377092-08-5P 422574-55-8P 422574-61-6P 422574-63-8P 422574-79-6P 422574-80-9P

422574-81-0P 422574-82-1P

(**light-emitting** devices with emitting layers including heterocyclic compds. and phosphorescent materials and heterocycle deriv. polymers for them)

IT 50851-57-5

(polyethylene dioxythiophene doped with; **light-emitting** devices with emitting layers including heterocyclic compds. and phosphorescent materials and heterocycle deriv. polymers for them)

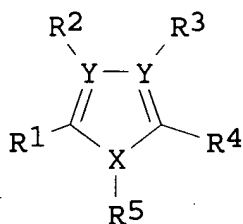
IT 126213-51-2, Poly(3,4-ethylenedioxythiophene)

(polystyrene sulfonate-doped; **light-emitting** devices with emitting layers including heterocyclic compds. and phosphorescent materials and heterocycle deriv. polymers for them)

L57 ANSWER 15 OF 17 HCA COPYRIGHT 2005 ACS on STN

136:348073 Organic **light-emitting** devices. Ikai, Masamichi; Takeuchi, Hisato; Tokito, Shizuo; Taga, Yasunori (Kabushiki Kaisha Toyota Chuo Kenkyusho, Japan). Eur. Pat. Appl. EP 1202608 A2 **20020502**, 46 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR. (English). CODEN: EPXXDW. APPLICATION: EP 2001-125801 20011029. PRIORITY: JP 2000-330356 20001030.

GI



I

AB Org. **light-emitting** devices are described in which an org. material constituting .gtoreq.1 of the org. layers is described by the general formula I (X = O, N, S; Y = C, N; R1 and R2 and/or R3 and R4 and/or R2 and R3 may form a ring(s), or .gtoreq.1 of R1, R4 and R5 is a nitrogen or arom. ring and is a compd. connected to .gtoreq.1 more skeleton through the nitrogen or arom. ring, or .gtoreq.1 of R1, R4 and R5 is nitrogen or arom. ring and is a compd. connected to .gtoreq.1 more skeleton through the at least nitrogen or arom. ring and alicyclic compd.) and has a glass transition temp. of .gtoreq.100.degree..

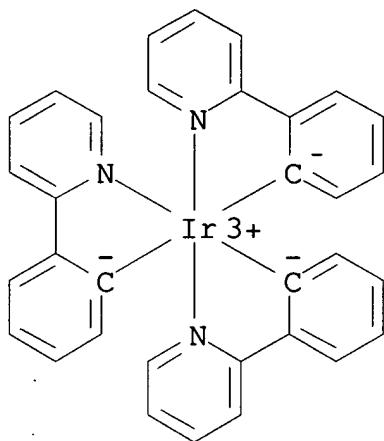
IT 94928-86-6



(org. **light-emitting** devices using  
heterocyclic compds.)

RN 94928-86-6 HCA

CN Iridium, tris[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]-, (OC-6-22) -  
(9CI) (CA INDEX NAME)

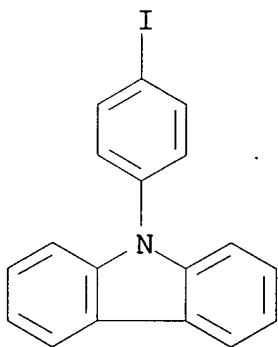


IT 57103-15-8

(org. **light-emitting** devices using  
heterocyclic compds.)

RN 57103-15-8 HCA

CN 9H-Carbazole, 9-(4-iodophenyl)- (9CI) (CA INDEX NAME)

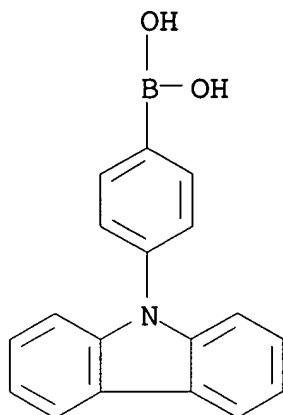


IT 419536-33-7P

(org. **light-emitting** devices using  
heterocyclic compds.)

RN 419536-33-7 HCA

CN Boronic acid, [4-(9H-carbazol-9-yl)phenyl]- (9CI) (CA INDEX NAME)



- IC ICM H05B033-14  
ICS H01L051-20; C09K011-06
- CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
Section cross-reference(s): 27, 28, 76
- ST **oxadiazole** org **light emitting** device;  
diazole org **light emitting** device; heterocycle  
org **light emitting** device; azole org  
**light emitting** device; **triazole** org  
**light emitting** device; imidazole org **light**  
**emitting** device; thiazole org **light**  
**emitting** device
- IT Heterocyclic compounds  
(five-membered; org. **light-emitting** devices  
using heterocyclic compds.)
- IT Heterocyclic compounds  
(nitrogen, five-membered; org. **light-emitting**  
devices using heterocyclic compds.)
- IT **Electroluminescent** devices  
(org.; org. **light-emitting** devices using  
heterocyclic compds.)
- IT 2085-33-8, Tris(8-hydroxyquinolinato)aluminum 7429-90-5, Aluminum,  
uses 7789-24-4, Lithium fluoride, uses 50926-11-9, ITO  
123847-85-8, .alpha.-NPD 139092-78-7 160780-82-5 192198-85-9  
262422-70-8 419536-30-4  
(org. **light-emitting** devices using  
heterocyclic compds.)
- IT **94928-86-6**  
(org. **light-emitting** devices using  
heterocyclic compds.)
- IT 419536-31-5P 419536-32-6P  
(org. **light-emitting** devices using  
heterocyclic compds.)

IT 86-74-8, Carbazole 121-43-7 57103-15-8 334658-72-9  
(org. **light-emitting** devices using  
heterocyclic compds.)

IT 419536-33-7P  
(org. **light-emitting** devices using  
heterocyclic compds.)

L57 ANSWER 16 OF 17 HCA COPYRIGHT 2005 ACS on STN

136:254380 Organometallic complexes as phosphorescent emitters in  
organic LEDs. Thompson, Mark E.; Djurovich, Peter; Lamansky,  
Sergey; Murphy, Drew; Kwong, Raymond; Abdel-Razzaq, Feras; Forrest,  
Stephen R.; Baldo, Marc A.; Burrows, Paul E. (The Trustees of  
Princeton University, USA; The University of Southern California).  
U.S. Pat. Appl. Publ. US 2002034656 A1 20020321, 77 pp.,  
Cont.-in-part of U. S. Ser. No. 274,609, abandoned. (English).  
CODEN: USXXCO. APPLICATION: US 2001-883734 20010618. PRIORITY: US  
1998-153144 19980914; US 1999-274609 19990323; US 1999-311126  
19990513; US 1999-452346 19991201.

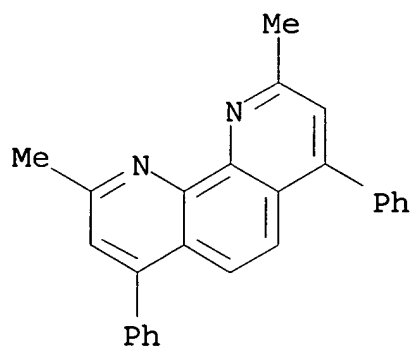
AB Emissive layers of org. **light-emitting** devices  
are described which comprise a phosphorescent organometallic compd.  
for enhancing the quantum efficiency of the org. **light-**  
**emitting** device. Preferably the emissive mol. is selected  
from the group of phosphorescent organometallic **complexes**,  
including cyclometallated **platinum, iridium, and**  
**osmium complexes**. The org. **light-**  
**emitting** devices optionally contain an exciton blocking  
layer. In particular, org. **light-emitting**  
devices with an emitter layer comprising organometallic complexes of  
transition metals of formula L2MX, wherein L and X are distinct  
bidentate ligandss and M is a metal which forms octahedral  
complexes, are described. A method of making a compn. of the  
formula L2MX is described which entails combining a bridged dimer of  
formula L2M(.mu.-Cl)2ML2 with a Bronsted acid XH to make the desired  
organometallic complex. Display devices incorporating the  
**light-emitting** devices are also described.

IT 4733-39-5, 2,9-Dimethyl-4,7-diphenyl-1,10-phenanthroline  
88821-71-0 94928-86-6, fac-Tris(2-phenylpyridine)  
**iridium** 180971-61-3 212385-75-6D,  
derivs.

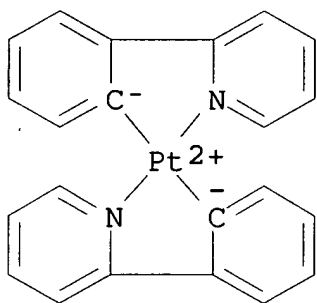
(organometallic **complexes** and their prepn. and org.  
**light-emitting** devices using them as  
phosphorescent emitters)

RN 4733-39-5 HCA

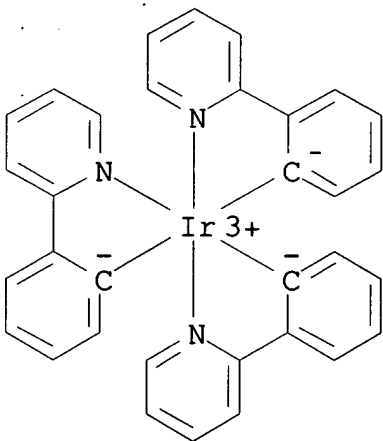
CN 1,10-Phenanthroline, 2,9-dimethyl-4,7-diphenyl- (6CI, 7CI, 8CI, 9CI)  
(CA INDEX NAME)



RN 88821-71-0 HCA

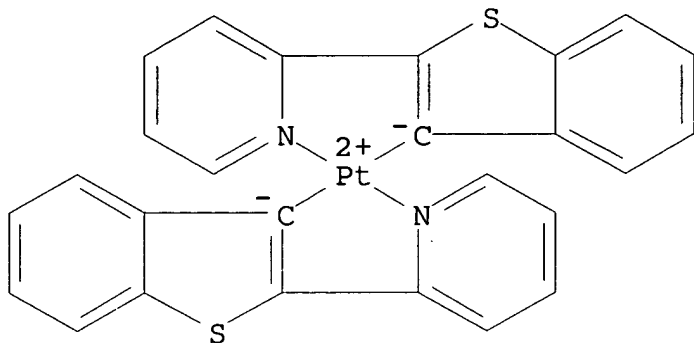
CN Platinum, bis[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]-, (SP-4-2)-  
(9CI) (CA INDEX NAME)

RN 94928-86-6 HCA

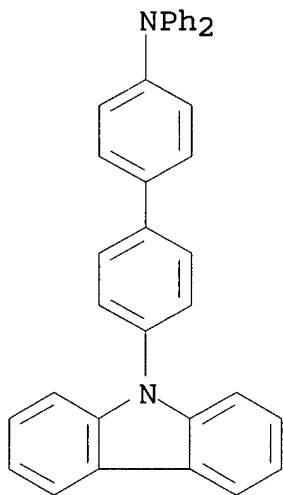
CN Iridium, tris[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]-, (OC-6-22)-  
(9CI) (CA INDEX NAME)

RN 180971-61-3 HCA

CN Platinum, bis[2-(2-pyridinyl-.kappa.N)benzo[b]thien-3-yl-.kappa.C]-, (SP-4-2)- (9CI) (CA INDEX NAME)



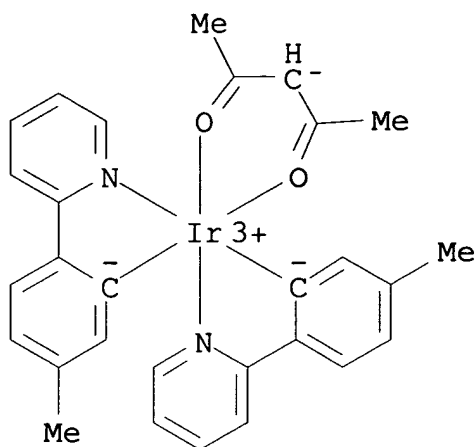
RN 212385-75-6 HCA  
 CN [1,1'-Biphenyl]-4-amine, 4'-(9H-carbazol-9-yl)-N,N-diphenyl- (9CI)  
 (CA INDEX NAME)



IT 337526-86-0P 337526-88-2P 337526-89-3P  
 337526-98-4P 343978-86-9P 343978-88-1P  
 343978-92-7P 343978-96-1P 343978-99-4P  
 344426-19-3P

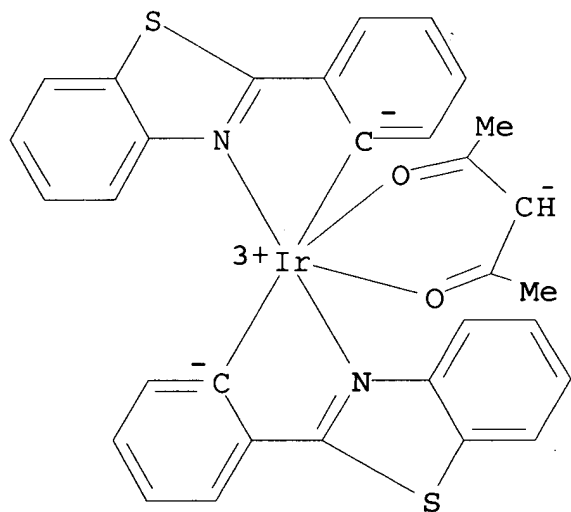
(organometallic complexes and their prepn. and org. **light**  
 -**emitting** devices using them as phosphorescent  
 emitters)

RN 337526-86-0 HCA  
 CN Iridium, bis[5-methyl-2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C] (2,4-pentanedionato-.kappa.O,.kappa.O')-, (OC-6-33)- (9CI) (CA INDEX NAME)



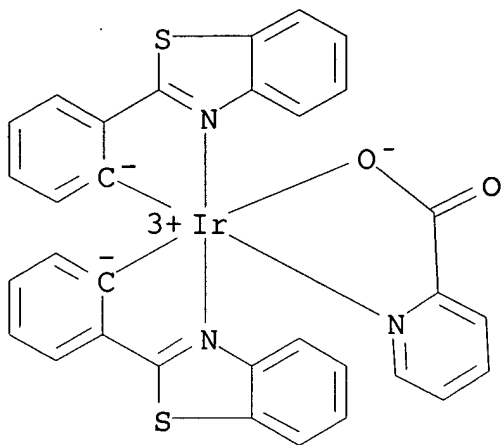
RN 337526-88-2 HCA

CN Iridium, bis[2-(2-benzothiazolyl-.kappa.N3)phenyl-.kappa.C] (2,4-pentanedionato-.kappa.O,.kappa.O')-, (OC-6-33)- (9CI) (CA INDEX NAME)



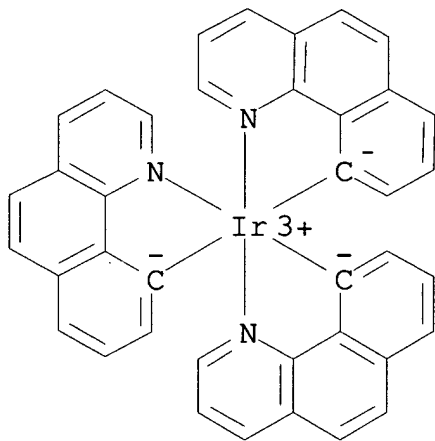
RN 337526-89-3 HCA

CN Iridium, bis[2-(2-benzothiazolyl-.kappa.N3)phenyl-.kappa.C] (2-pyridinecarboxylato-.kappa.N1,.kappa.O2)-, (OC-6-42)- (9CI) (CA INDEX NAME)



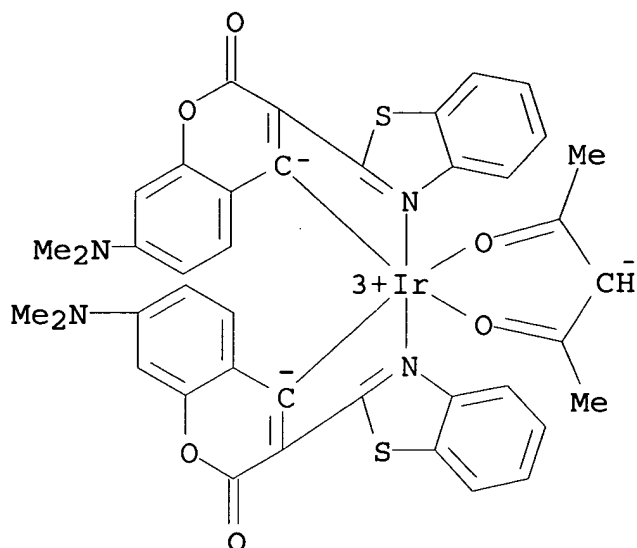
RN 337526-98-4 HCA

CN Iridium, tris(benzo[h]quinolin-10-yl-.kappa.C,.kappa.N)-, (OC-6-22)-(9CI) (CA INDEX NAME)



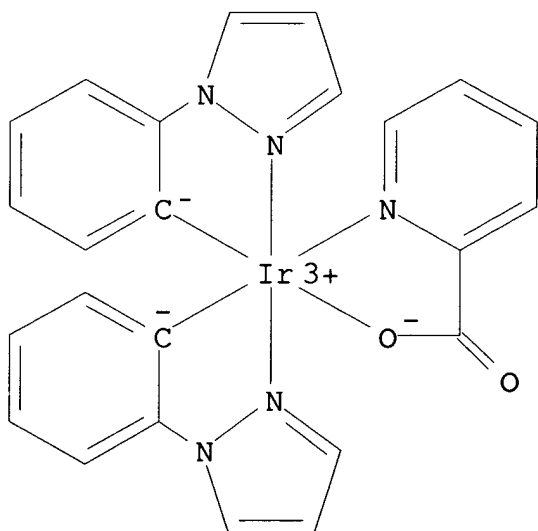
RN 343978-86-9 HCA

CN Iridium, bis[3-(2-benzothiazolyl-.kappa.N3)-7-(dimethylamino)-2-oxo-2H-1-benzopyran-4-yl-.kappa.C] (2,4-pentanedionato-.kappa.O,.kappa.O')-, (OC-6-33)-(9CI) (CA INDEX NAME)



RN 343978-88-1 HCA

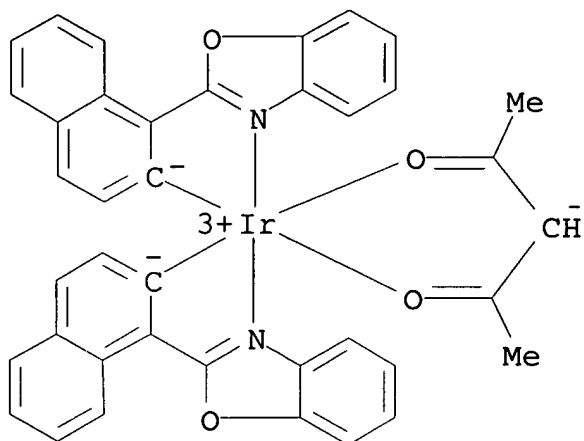
CN Iridium, bis[2-(1H-pyrazol-1-yl-.kappa.N2)phenyl-.kappa.C] (2-pyridinecarboxylato-.kappa.N1,.kappa.O2)-, (OC-6-42)- (9CI) (CA INDEX NAME)



RN 343978-92-7 HCA

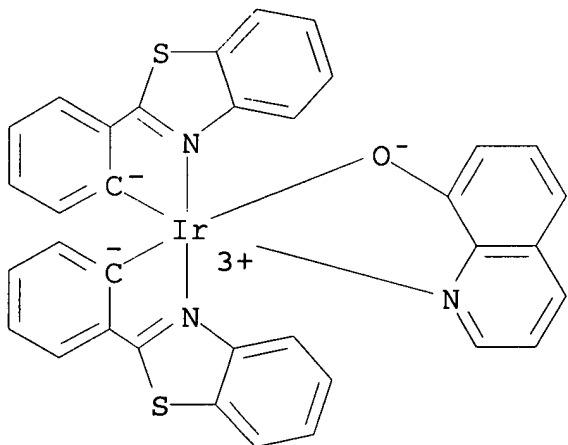
CN Iridium, bis[1-(2-benzoxazolyl-.kappa.N3)-2-naphthalenyl-.kappa.C] (2,4-pentanedionato-.kappa.O,.kappa.O')-, (OC-6-33)- (9CI) (CA INDEX NAME)





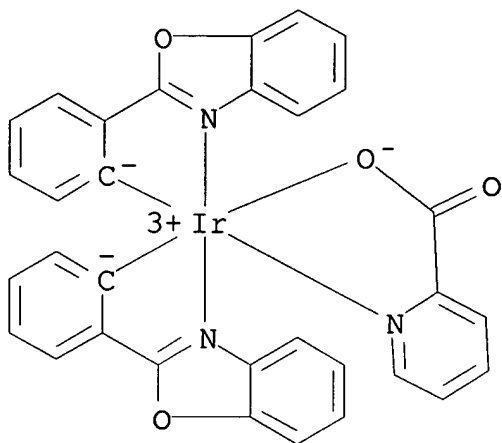
RN 343978-96-1 HCA

CN Iridium, bis[2-(2-benzothiazolyl-.kappa.N3)phenyl-.kappa.C] (8-quinolinolato-.kappa.N1,.kappa.O8)-, (OC-6-42)- (9CI) (CA INDEX NAME)



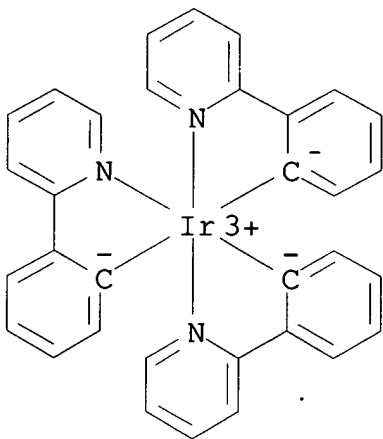
RN 343978-99-4 HCA

CN Iridium, bis[2-(2-benzoxazolyl-.kappa.N3)phenyl-.kappa.C] (2-pyridinecarboxylato-.kappa.N1,.kappa.O2)-, (OC-6-42)- (9CI) (CA INDEX NAME)



RN 344426-19-3 HCA

CN Iridium, tris[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]-, (OC-6-21)-(9CI) (CA INDEX NAME)

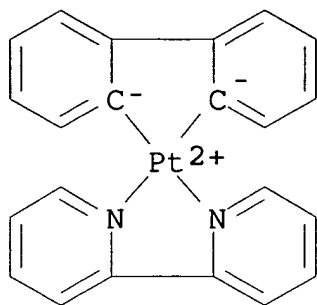


IT 110077-26-4P 138736-22-8P 337526-85-9P  
337526-87-1P 337526-91-7P 343978-75-6P  
343978-76-7P 343978-77-8P 343978-78-9P  
343978-79-0P

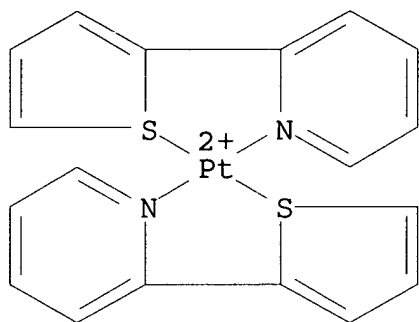
(organometallic complexes and their prepn. and org. light  
-emitting devices using them as phosphorescent  
emitters)

RN 110077-26-4 HCA

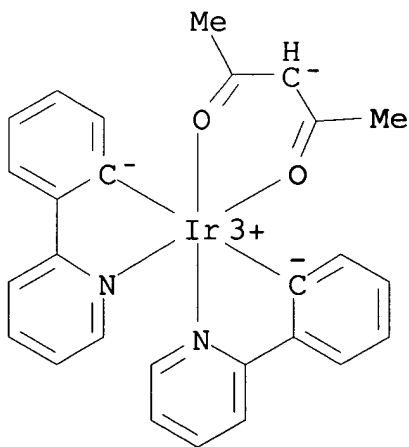
CN Platinum, [1,1'-biphenyl]-2,2'-diyl(2,2'-bipyridine-  
.kappa.N1,.kappa.N1')-, (SP-4-2)-(9CI) (CA INDEX NAME)



RN 138736-22-8 HCA  
 CN Platinum(2+), bis[2-(2-thienyl-.kappa.S)pyridine-.kappa.N] - (9CI)  
 (CA INDEX NAME)

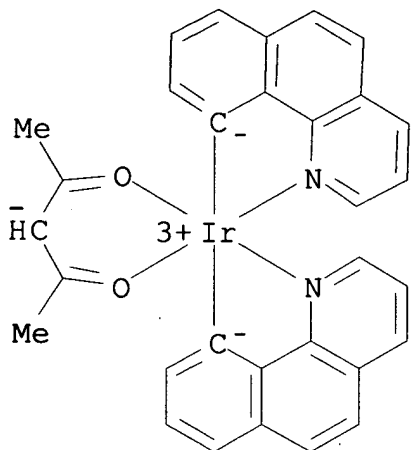


RN 337526-85-9 HCA  
 CN Iridium, (2,4-pentanedionato-.kappa.O,.kappa.O')bis[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C] -, (OC-6-33) - (9CI) (CA INDEX NAME)



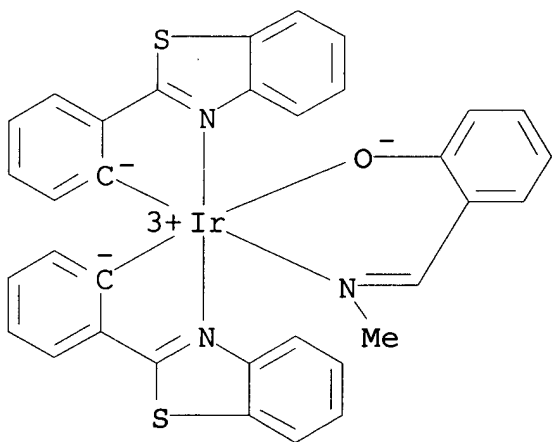
RN 337526-87-1 HCA

CN Iridium, bis(benzo[h]quinolin-10-yl-.kappa.C,.kappa.N) (2,4-pentanedionato-.kappa.O,.kappa.O')-, (OC-6-33)- (9CI) (CA INDEX NAME)



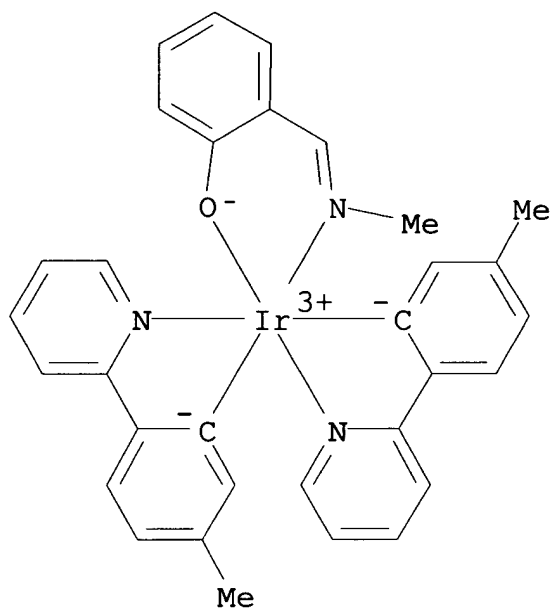
RN 337526-91-7 HCA

CN Iridium, bis[2-(2-benzothiazolyl-.kappa.N3)phenyl-.kappa.C] [2-[(methylimino-.kappa.N)methyl]phenolato-.kappa.O]-, (OC-6-42)- (9CI) (CA INDEX NAME)



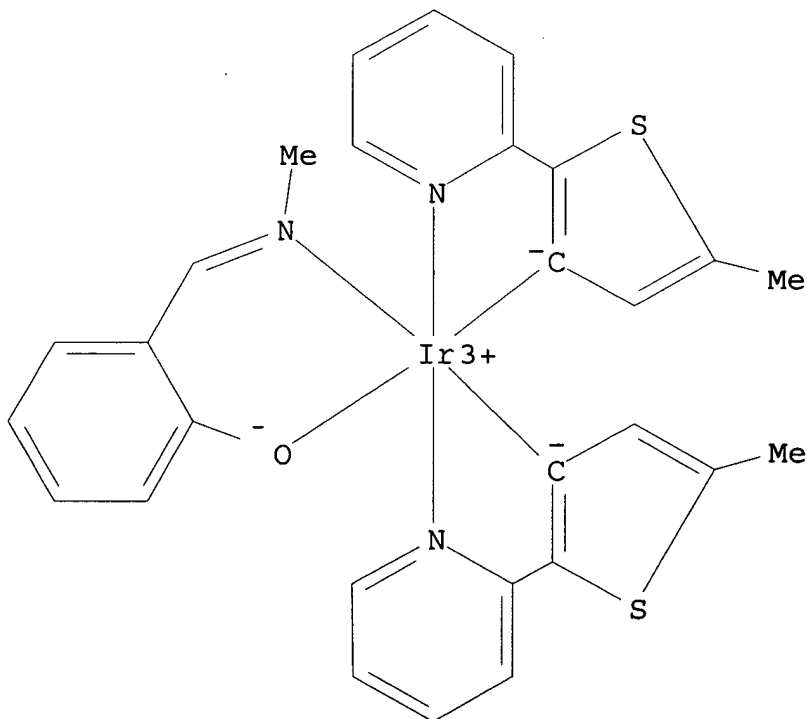
RN 343978-75-6 HCA

CN Iridium, [2-[(methylimino-.kappa.N)methyl]phenolato-.kappa.O]bis[5-methyl-2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]-, (OC-6-44)- (9CI) (CA INDEX NAME)



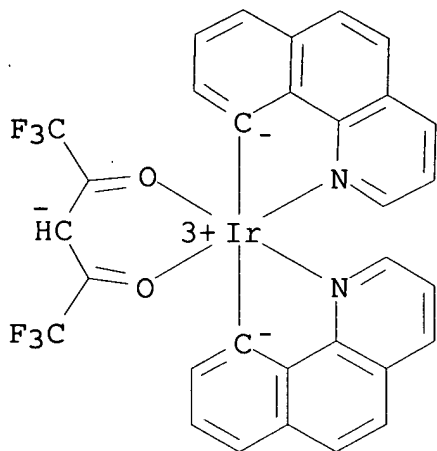
RN 343978-76-7 HCA

CN Iridium, [2-[(methylimino-.kappa.N)methyl]phenolato-.kappa.O]bis[5-methyl-2-(2-pyridinyl-.kappa.N)-3-thienyl-.kappa.C]-, (OC-6-44)-(9CI) (CA INDEX NAME)



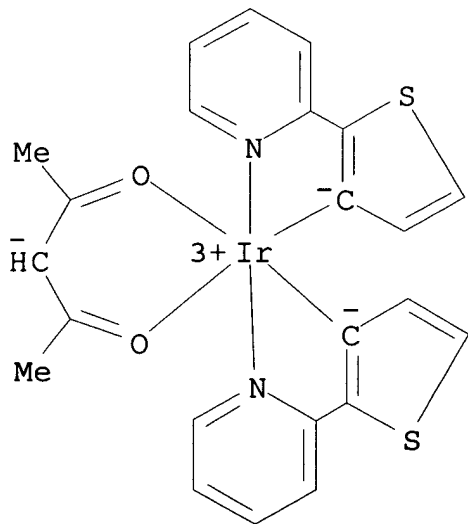
RN 343978-77-8 HCA

CN Iridium, bis(benzo[h]quinolin-10-yl-.kappa.C,.kappa.N) (1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-.kappa.O,.kappa.O')-, (OC-6-33) - (9CI)  
(CA INDEX NAME)



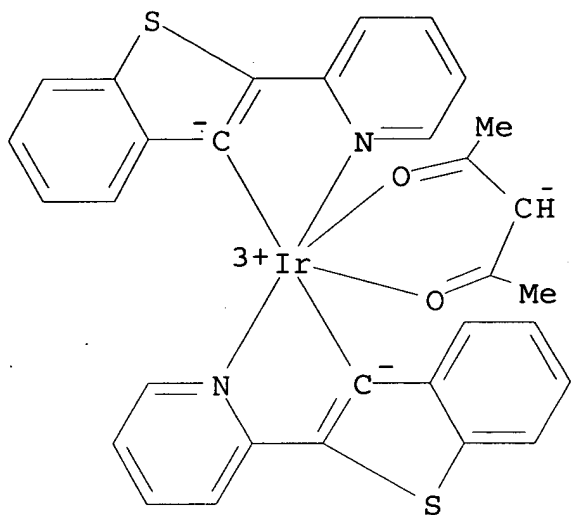
RN 343978-78-9 HCA

CN Iridium, (2,4-pentanedionato-.kappa.O,.kappa.O')bis[2-(2-pyridinyl-.kappa.N)-3-thienyl-.kappa.C]-, (OC-6-33) - (9CI) (CA INDEX NAME)



RN 343978-79-0 HCA

CN Iridium, (2,4-pentanedionato-.kappa.O,.kappa.O')bis[2-(2-pyridinyl-.kappa.N)benzo[b]thien-3-yl-.kappa.C]-, (OC-6-33) - (9CI) (CA INDEX NAME)

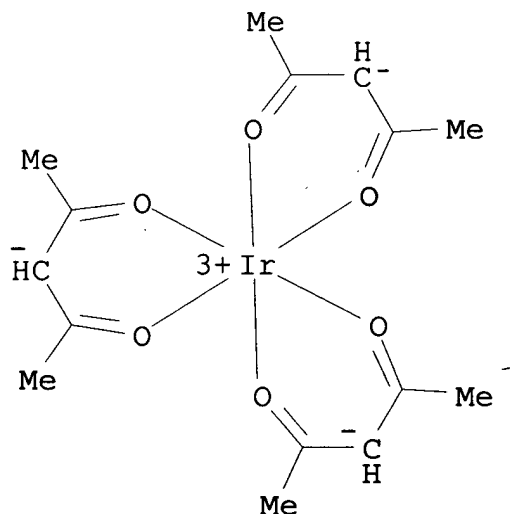


IT 15635-87-7 343978-74-5

(organometallic **complexes** and their prepn. and org.  
light-emitting devices using them as  
phosphorescent emitters)

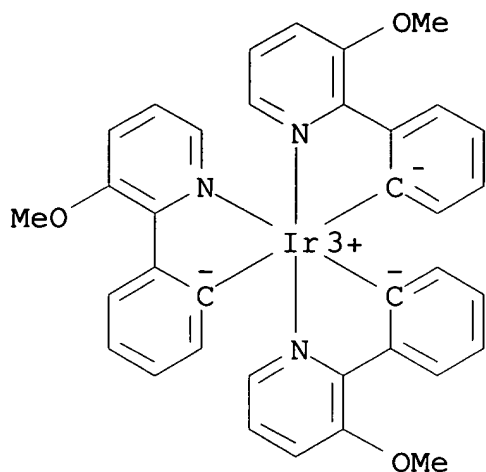
RN 15635-87-7 HCA

CN Iridium, tris(2,4-pentanedionato-.kappa.O,.kappa.O')-, (OC-6-11)-  
(9CI) (CA INDEX NAME)



RN 343978-74-5 HCA

CN Iridium, tris[2-(3-methoxy-2-pyridinyl-.kappa.N)phenyl-.kappa.C]-,  
(OC-6-21)- (9CI) (CA INDEX NAME)

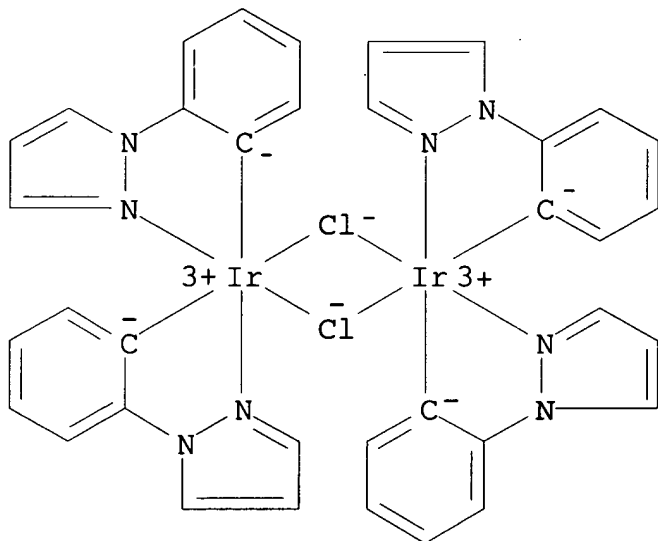


IT 57175-14-1P 116563-45-2P 343978-82-5P  
343978-90-5P

(organometallic complexes and their prepn. and org. **light**  
-**emitting** devices using them as phosphorescent  
emitters)

RN 57175-14-1 HCA

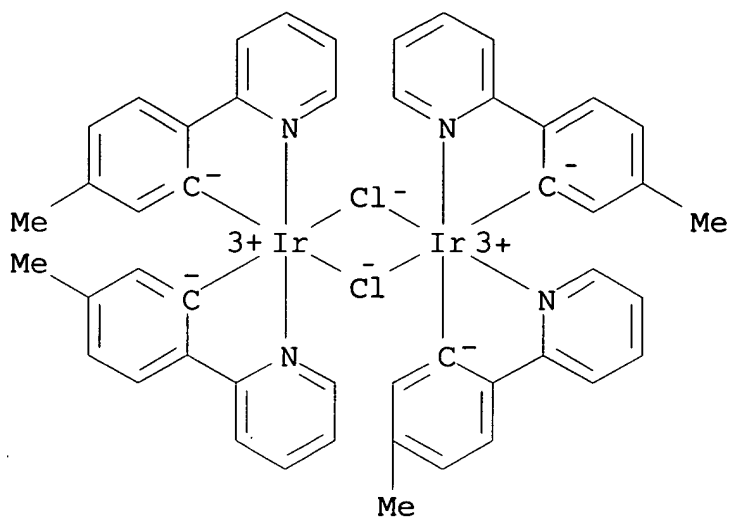
CN Iridium, di-.mu.-chlorotetrakis[2-(1H-pyrazol-1-yl)phenyl]di-,  
stereoisomer (9CI) (CA INDEX NAME)



RN 116563-45-2 HCA

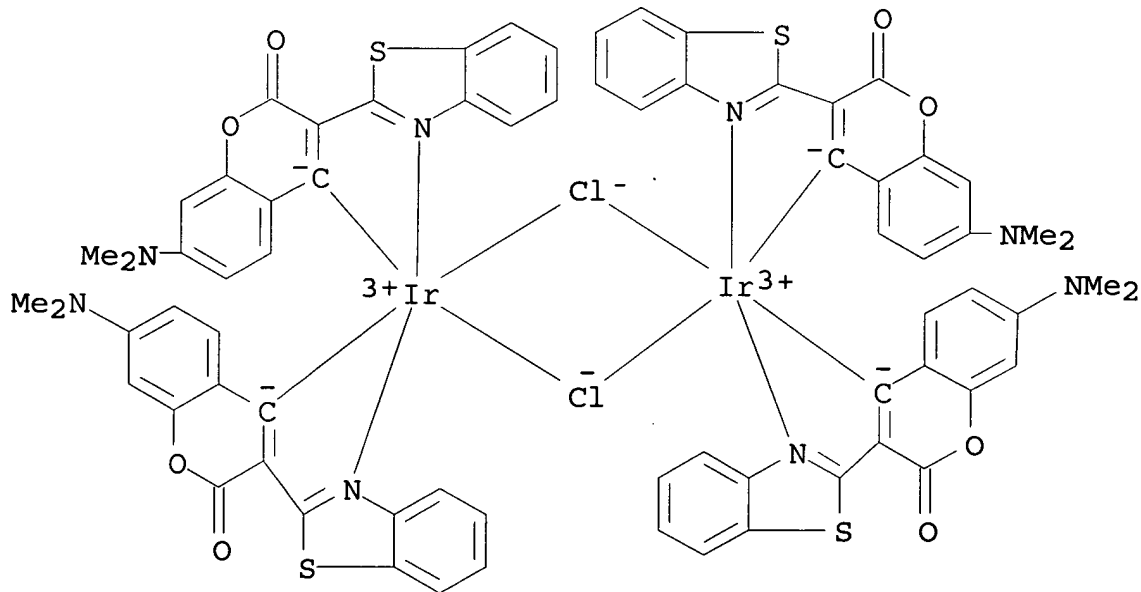
CN Iridium, di-.mu.-chlorotetrakis[5-methyl-2-(2-pyridinyl-  
.kappa.N)phenyl-.kappa.C]di-, stereoisomer (9CI) (CA INDEX NAME)





RN 343978-82-5 HCA

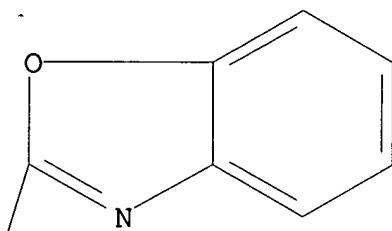
CN Iridium, tetrakis[3-(2-benzothiazolyl-.kappa.N3)-7-(dimethylamino)-2-oxo-2H-1-benzopyran-4-yl-.kappa.C]di-.mu.-chlorodi- (9CI) (CA INDEX NAME)



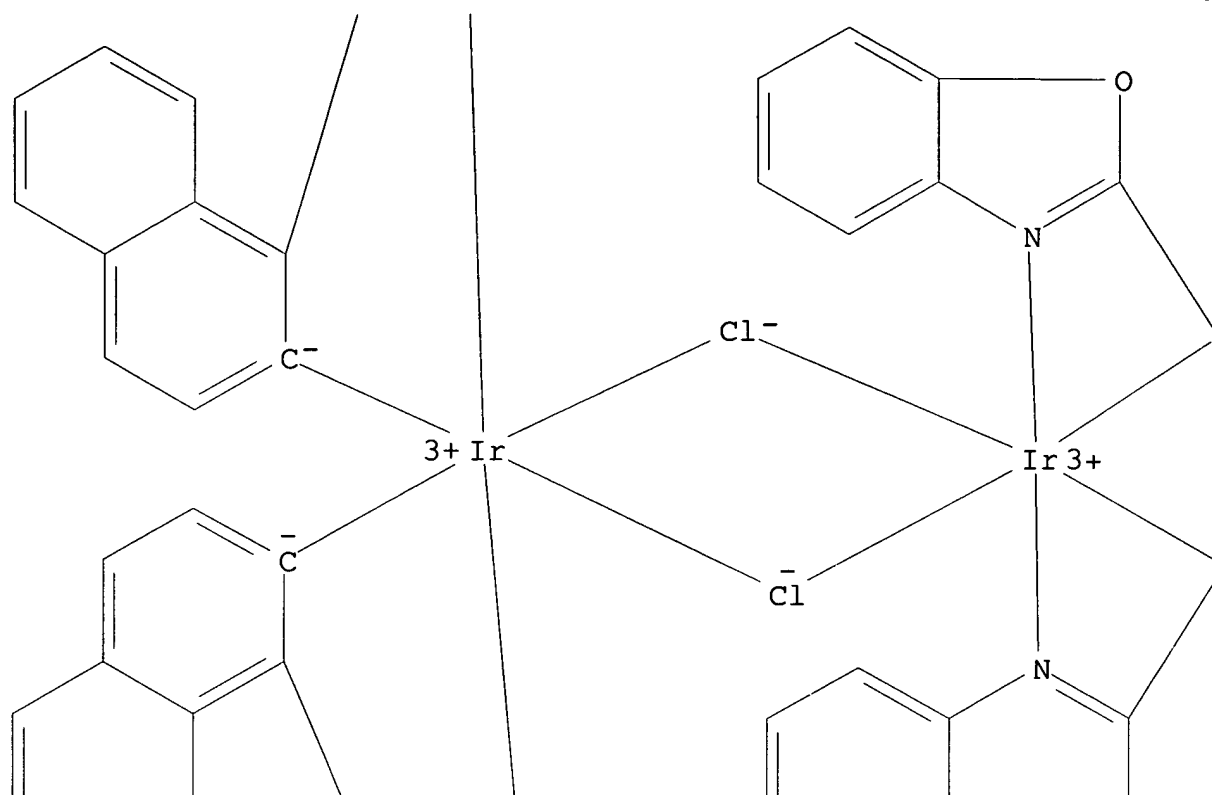
RN 343978-90-5 HCA

CN Iridium, tetrakis[1-(2-benzoxazolyl-.kappa.N3)-2-naphthalenyl-.kappa.C]di-.mu.-chlorodi- (9CI) (CA INDEX NAME)

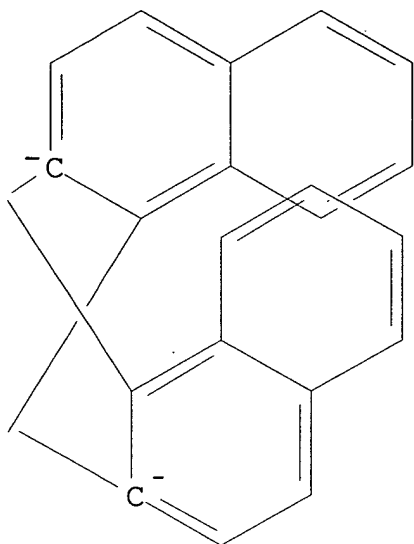
PAGE 1-A



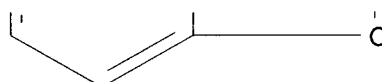
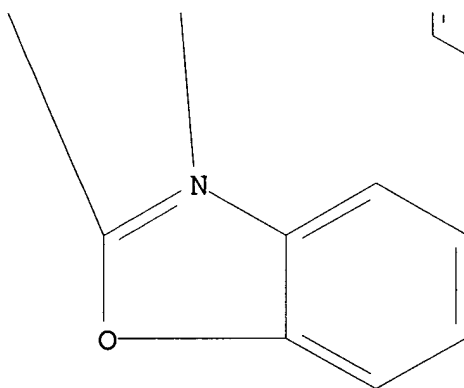
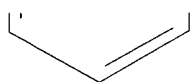
PAGE 2-A



PAGE 2-B



PAGE 3-A

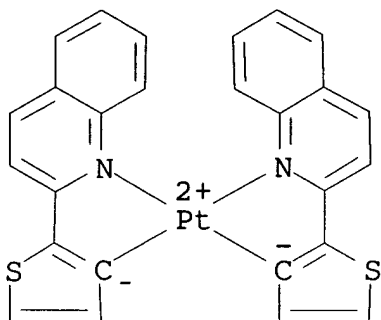


IT 128025-34-3P

(organometallic **complexes** and their prepn. and org.  
**light-emitting** devices using them as  
phosphorescent emitters)

RN 128025-34-3 HCA

CN Platinum, bis[2-(2-quinolinyl-.kappa.N)-3-thienyl-.kappa.C]-,  
(SP-4-2)- (9CI) (CA INDEX NAME)



- IC ICM H05B033-14  
ICS C09K011-06
- INCL 428690000
- CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
Section cross-reference(s): 74, 76, 78
- ST organometallic compd phosphorescent **emitter** org  
**light emitting** device
- IT **Electroluminescent** devices  
(org.; organometallic complexes and their prepn. and org. **light-emitting** devices using them as phosphorescent emitters)
- IT Phosphorescent substances  
(organometallic complexes and their prepn. and org. **light-emitting** devices using them as phosphorescent emitters)
- IT 2085-33-8, Tris(8-hydroxyquinolinato)aluminum 4733-39-5, 2,9-Dimethyl-4,7-diphenyl-1,10-phenanthroline 7440-04-2D, Osmium, compds. with org. ligands 9003-53-6, Polystyrene 25067-59-8, Polyvinylcarbazole 57102-62-2D, derivs. 58328-31-7 58328-31-7D, derivs. 88821-71-0 94928-86-6, fac-Tris(2-phenylpyridine)iridium 123847-85-8, 4,4'-Bis[N-(1-naphthyl)-N-phenylamino]biphenyl 180971-61-3 212385-75-6D, derivs. 344406-74-2D, derivs.  
(organometallic **complexes** and their prepn. and org. **light-emitting** devices using them as phosphorescent emitters)
- IT 337526-86-0P 337526-88-2P 337526-89-3P  
337526-98-4P 343978-86-9P 343978-88-1P  
343978-92-7P 343978-96-1P 343978-99-4P  
344426-19-3P  
(organometallic complexes and their prepn. and org. **light-emitting** devices using them as phosphorescent emitters)
- IT 110077-26-4P 138736-22-8P 337526-85-9P  
337526-87-1P 337526-91-7P 343978-75-6P

**343978-76-7P 343978-77-8P 343978-78-9P**

**343978-79-0P**

(organometallic complexes and their prepn. and org. **light-emitting** devices using them as phosphorescent emitters)

IT 86-55-5, 1-Naphthoic acid 91-22-5, Quinoline, reactions 95-55-6, 2-Aminophenol 98-98-6, Picolinic acid 108-86-1, Bromobenzene, reactions 110-02-1, Thiophene 110-86-1, Pyridine, reactions 123-54-6, Acetylacetone, reactions 148-24-3, 8-Hydroxyquinoline, reactions 302-01-2, Hydrazine, reactions 352-93-2, Diethyl sulfide 372-48-5, 2-Fluoropyridine 602-09-5, 2,2'-Dihydroxy-1,1'-binaphthyl 615-36-1 1126-00-7, 1-Phenylpyrazole 3117-65-5 4467-06-5, 2-(p-Tolyl)pyridine 7726-95-6, Bromine, reactions 7758-02-3, Potassium bromide, reactions 10025-83-9, **Iridium** trichloride 10025-99-7, Potassium tetrachloroplatinate **15635-87-7** 38215-36-0 53698-49-0, 3-Methoxy-2-phenylpyridine **343978-74-5**

(organometallic **complexes** and their prepn. and org. **light-emitting** devices using them as phosphorescent emitters)

IT 1008-89-5P, 2-Phenylpyridine 1454-80-4P, 2,2'-Diaminobiphenyl 2436-96-6P, 2,2'-Dinitrobiphenyl 3164-18-9P, 2-(1-Naphthyl)benzoxazole 3319-99-1P, 2-(2-Thienyl)pyridine 13029-09-9P, 2,2'-Dibromobiphenyl 34243-33-9P **57175-14-1P** 74866-28-7P, 2,2'-Dibromo-1,1'-binaphthyl 109306-86-7P **116563-45-2P 343978-82-5P 343978-90-5P**

(organometallic complexes and their prepn. and org. **light-emitting** devices using them as phosphorescent emitters)

IT 15337-84-5P 15442-57-6P, cis-Dichlorobis-(diethyl sulfide) **platinum 128025-34-3P**

(organometallic **complexes** and their prepn. and org. **light-emitting** devices using them as phosphorescent emitters)

L57 ANSWER 17 OF 17 HCA COPYRIGHT 2005 ACS on STN

135:53380 Complexes of form L2MX as phosphorescent dopants for organic LEDs. Thompson, Mark E.; Djurovich, Peter; Lamansky, Sergey; Murphy, Drew; Kwong, Raymond; Abdel-Razzaq, Feras; Forrest, Stephen R.; Baldo, Marc A.; Burrows, Paul E. (Trustees of Princeton University, USA; University of Southern California). PCT Int. Appl. WO 2001041512 A1 **20010607**, 88 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY,

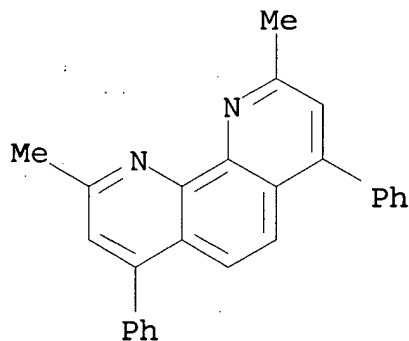
DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2000-US32511 20001129. PRIORITY: US 1999-452346 19991201.

AB Org. **light-emitting** devices are described in which an emitter layer comprises compds. (e.g., as dopants within a host) which are described by the general formula L2MX (L and X are inequivalent bidentate ligands; and M is a metal which forms octahedral complexes). Devices with emitter layers comprising phosphorescent compds. described by the general formula LL'L"M (L, L', and L" = inequivalent bidentate ligands) and comprising L'''2M (L''' = a monoanionic bidentate ligand coordinated to M through an sp2 carbon and a heteroatom; and wherein the heteroatoms of the two L ligands are in a trans configuration) are also described. The prepn. of L2MX by combining a bridged dimer described by the general formula L2M(.mu.-Cl)2ML2 with a Bronsted acid XH to make an organometallic complex of formula LMX is also described. Synthetic options allow insertion of fluorescent mols. into a phosphorescent complex, ligands to fine tune the color of emission, and ligands to trap carriers. 3-Methoxy-2-phenylpyridine.

IT **4733-39-5**, Bathocuproine **212385-75-6D**, derivs.  
(phosphorescent cyclometallated complex dopants for org.  
**light-emitting** devices and their prepn.)

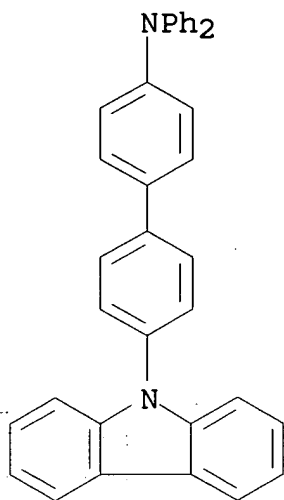
RN 4733-39-5 HCA

CN 1,10-Phenanthroline, 2,9-dimethyl-4,7-diphenyl- (6CI, 7CI, 8CI, 9CI)  
(CA INDEX NAME)



RN 212385-75-6 HCA

CN [1,1'-Biphenyl]-4-amine, 4'-(9H-carbazol-9-yl)-N,N-diphenyl- (9CI)  
(CA INDEX NAME)



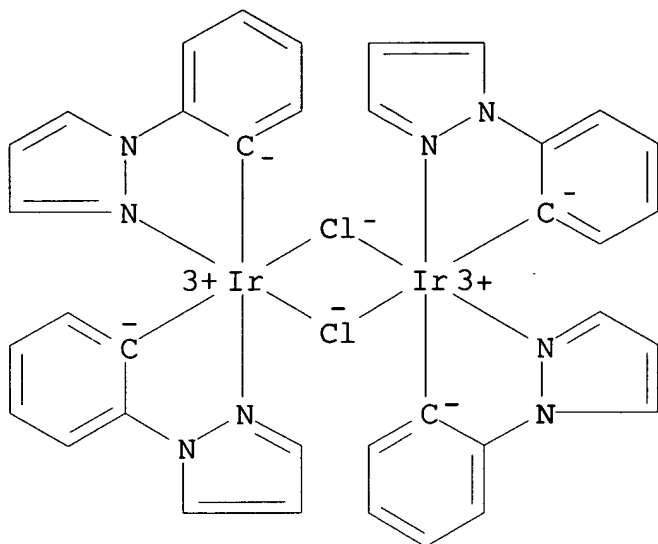
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337526-87-1P 337526-88-2P 337526-89-3P  
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343978-75-6P 343978-76-7P 343978-77-8P  
343978-78-9P 343978-79-0P 343978-82-5P  
343978-86-9P 343978-88-1P 343978-92-7P  
343978-94-9P 343978-96-1P 343978-99-4P  
344426-19-3P

(phosphorescent cyclometallated complex dopants for org.  
light-emitting devices and their prepn.)

RN 57175-14-1 HCA

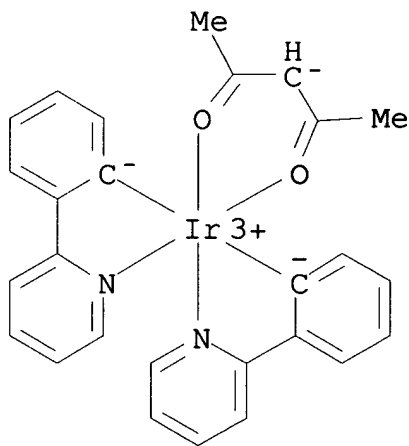
CN Iridium, di-.mu.-chlorotetrakis[2-(1H-pyrazol-1-yl)phenyl]di-,  
stereoisomer (9CI) (CA INDEX NAME)





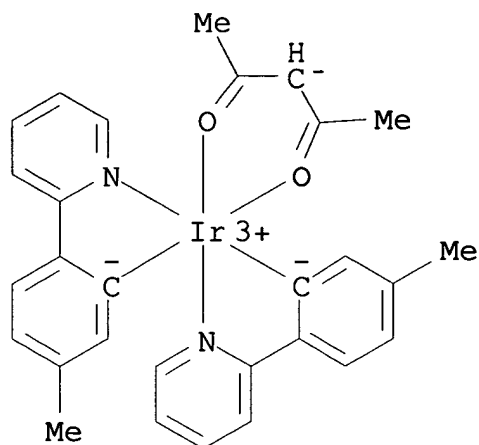
RN 337526-85-9 HCA

CN Iridium, (2,4-pentanedionato-.kappa.O,.kappa.O')bis[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]-, (OC-6-33) - (9CI) (CA INDEX NAME)



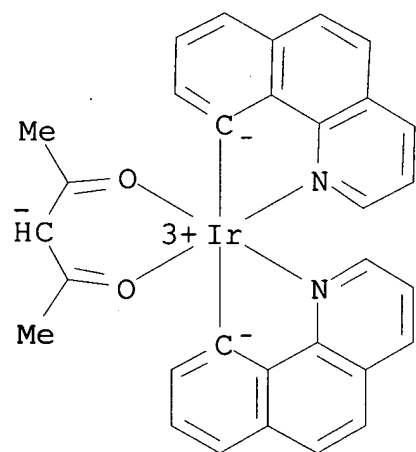
RN 337526-86-0 HCA

CN Iridium, bis[5-methyl-2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C] (2,4-pentanedionato-.kappa.O,.kappa.O')-, (OC-6-33) - (9CI) (CA INDEX NAME)



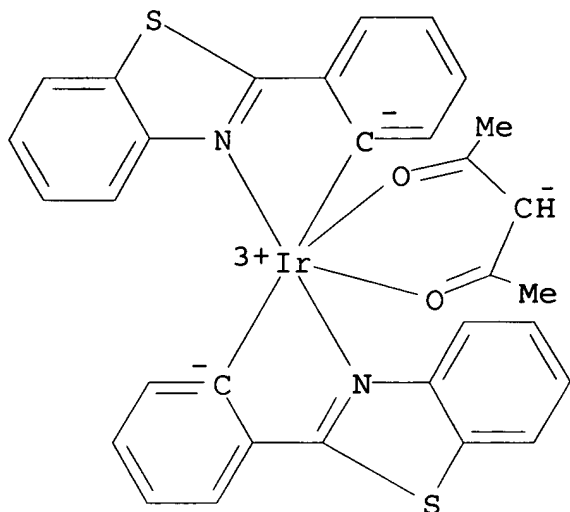
RN 337526-87-1 HCA

CN Iridium, bis(benzo[h]quinolin-10-yl-.kappa.C, .kappa.N) (2,4-pentanedionato-.kappa.O, .kappa.O')-, (OC-6-33) - (9CI) (CA INDEX NAME)



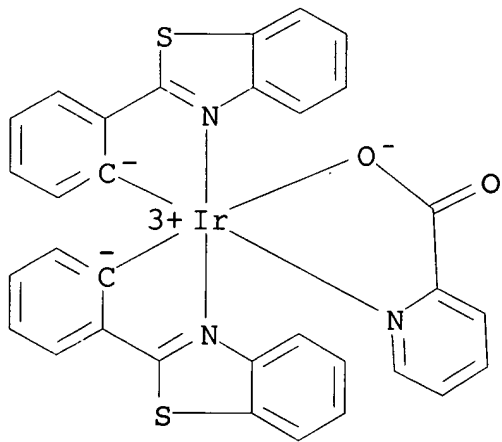
RN 337526-88-2 HCA

CN Iridium, bis[2-(2-benzothiazolyl-.kappa.N3)phenyl-.kappa.C] (2,4-pentanedionato-.kappa.O, .kappa.O')-, (OC-6-33) - (9CI) (CA INDEX NAME)



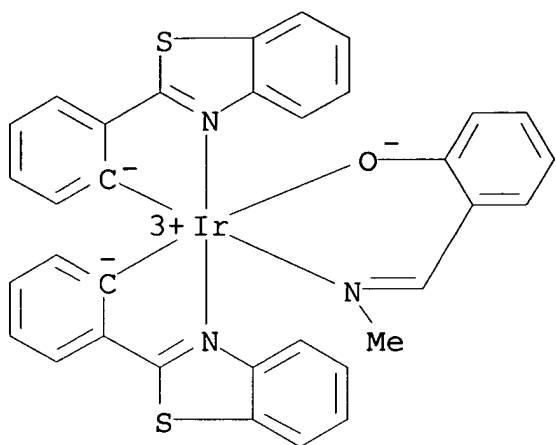
RN 337526-89-3 HCA

CN Iridium, bis[2-(2-benzothiazolyl-.kappa.N3)phenyl-.kappa.C] (2-pyridinecarboxylato-.kappa.N1,.kappa.O2)-, (OC-6-42)- (9CI) (CA INDEX NAME)



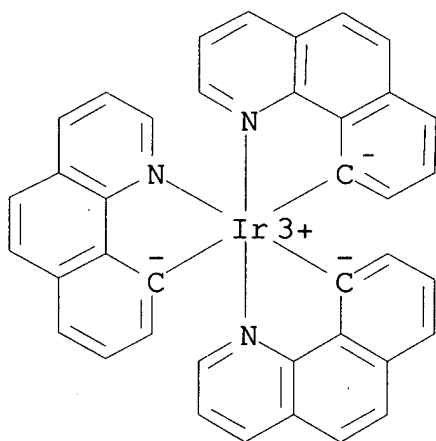
RN 337526-91-7 HCA

CN Iridium, bis[2-(2-benzothiazolyl-.kappa.N3)phenyl-.kappa.C] [2-[(methylimino-.kappa.N)methyl]phenolato-.kappa.O]-, (OC-6-42)- (9CI) (CA INDEX NAME)



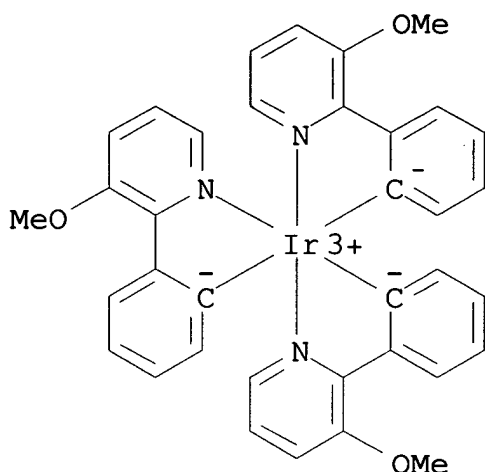
RN 337526-98-4 HCA

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(9CI) (CA INDEX NAME)

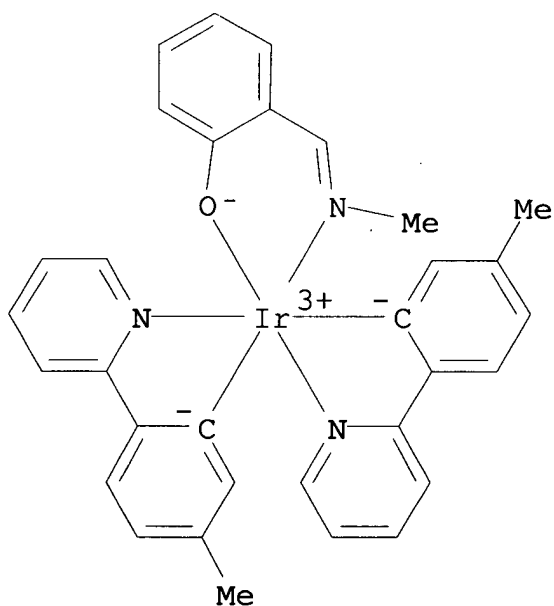


RN 343978-74-5 HCA

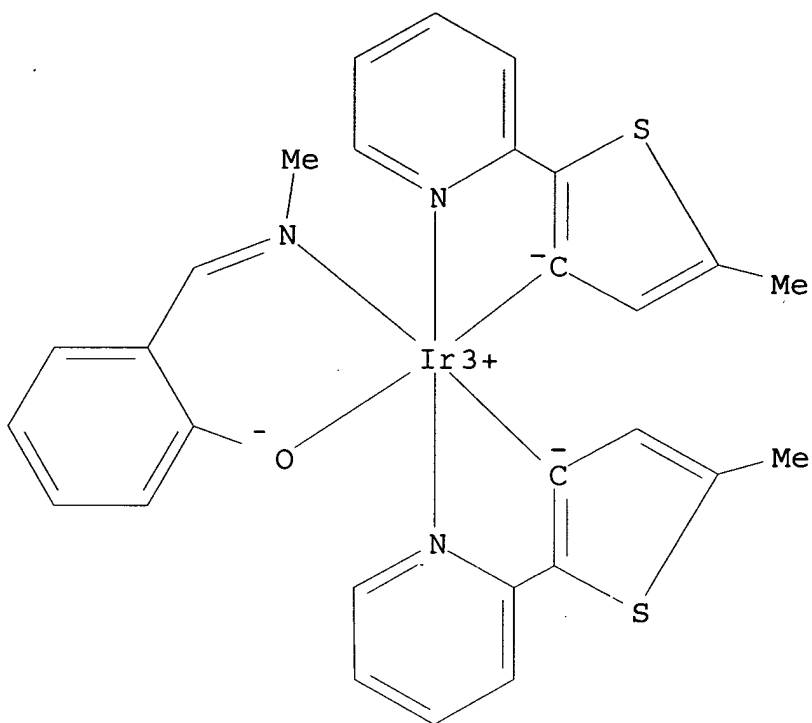
CN Iridium, tris[2-(3-methoxy-2-pyridinyl-.kappa.N)phenyl-.kappa.C]-,  
(OC-6-21)- (9CI) (CA INDEX NAME)



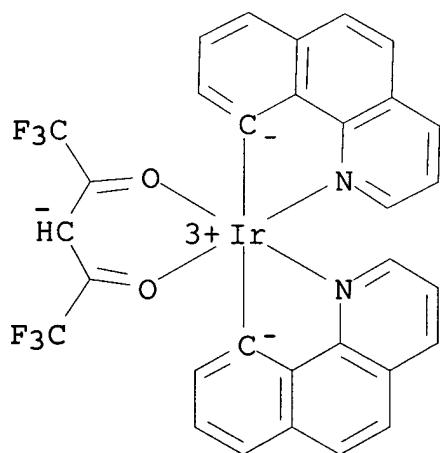
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CN	Iridium, [2-[(methylimino-.kappa.N)methyl]phenolato-.kappa.O]bis[5-methyl-2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]-, (OC-6-44)-(9CI) (CA INDEX NAME)	



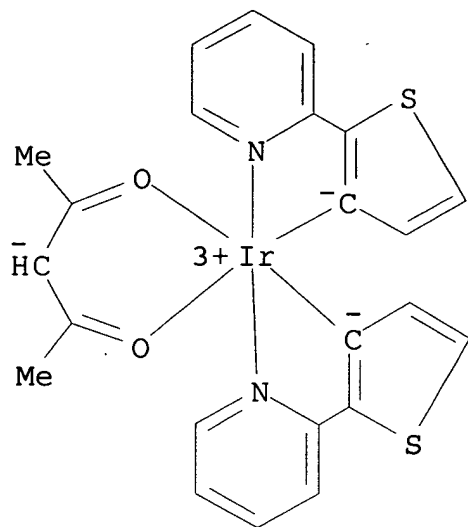
RN	343978-76-7	HCA
CN	Iridium, [2-[(methylimino-.kappa.N)methyl]phenolato-.kappa.O]bis[5-methyl-2-(2-pyridinyl-.kappa.N)-3-thienyl-.kappa.C]-, (OC-6-44)-(9CI) (CA INDEX NAME)	



RN 343978-77-8 HCA  
 CN Iridium, bis(benzo[h]quinolin-10-yl-.kappa.C,.kappa.N) (1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-.kappa.O,.kappa.O')-, (OC-6-33)- (9CI)  
 (CA INDEX NAME)

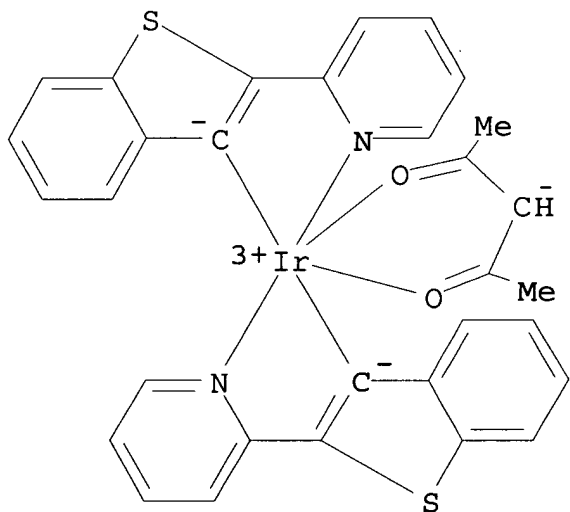


RN 343978-78-9 HCA  
 CN Iridium, (2,4-pentanedionato-.kappa.O,.kappa.O')bis[2-(2-pyridinyl-.kappa.N)-3-thienyl-.kappa.C]-, (OC-6-33)- (9CI) (CA INDEX NAME)



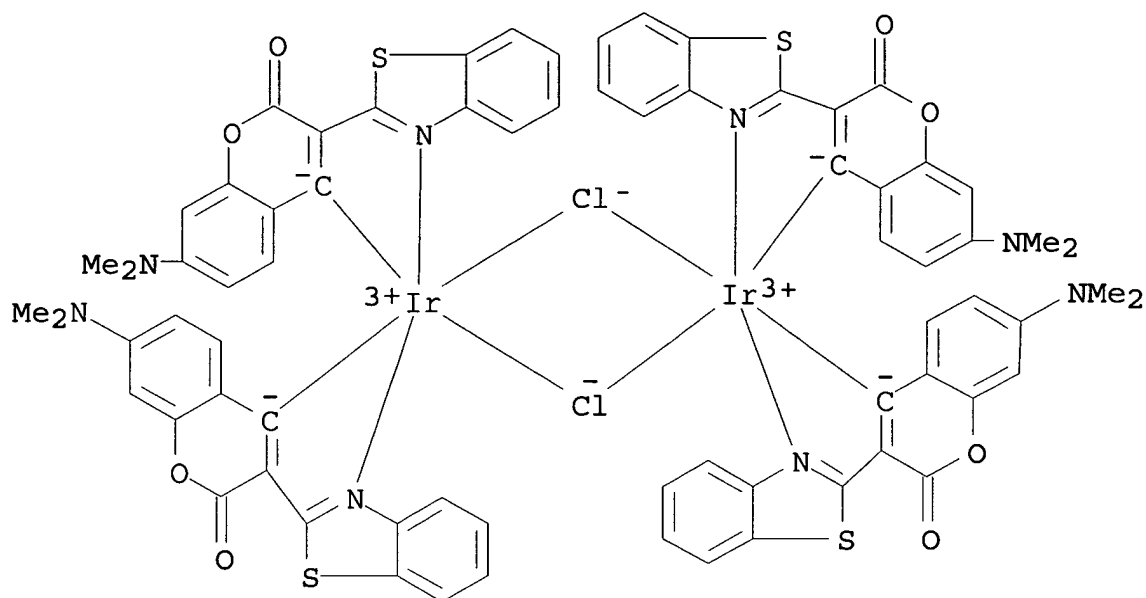
RN 343978-79-0 HCA

CN Iridium, (2,4-pentanedionato-κO, κO')bis[2-(2-pyridinyl-κN)benzo[b]thien-3-yl-κC]-, (OC-6-33)- (9CI) (CA INDEX NAME)



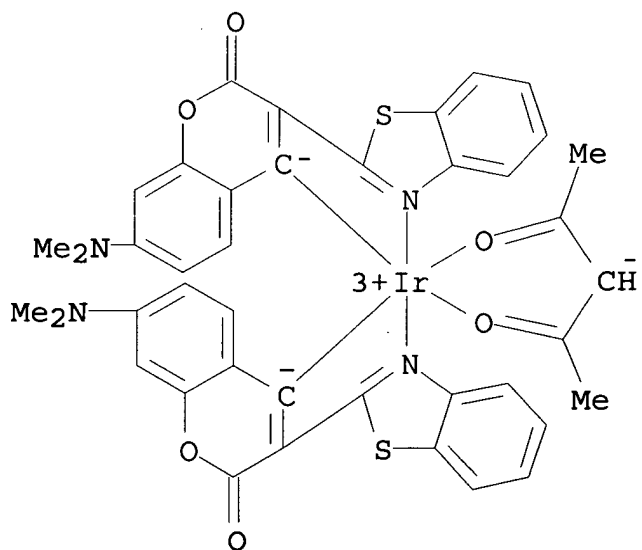
RN 343978-82-5 HCA

CN Iridium, tetrakis[3-(2-benzothiazolyl-κN3)-7-(dimethylamino)-2-oxo-2H-1-benzopyran-4-yl-κC]di-μ-chlorodi- (9CI) (CA INDEX NAME)



RN 343978-86-9 HCA

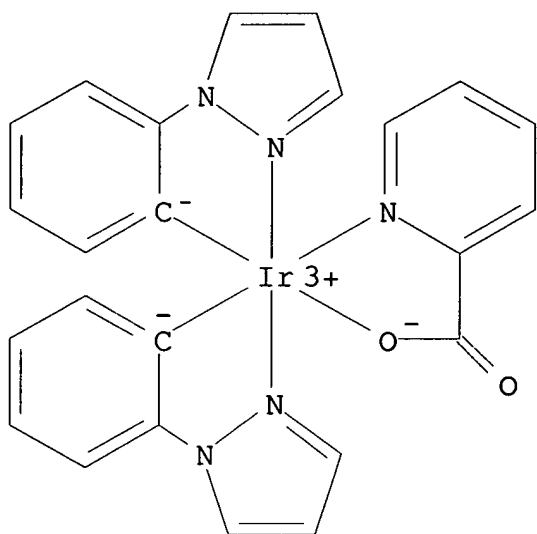
CN Iridium, bis[3-(2-benzothiazolyl-.kappa.N3)-7-(dimethylamino)-2-oxo-2H-1-benzopyran-4-yl-.kappa.C](2,4-pentanedionato-.kappa.O,.kappa.O')-, (OC-6-33)-(9CI) (CA INDEX NAME)



RN 343978-88-1 HCA

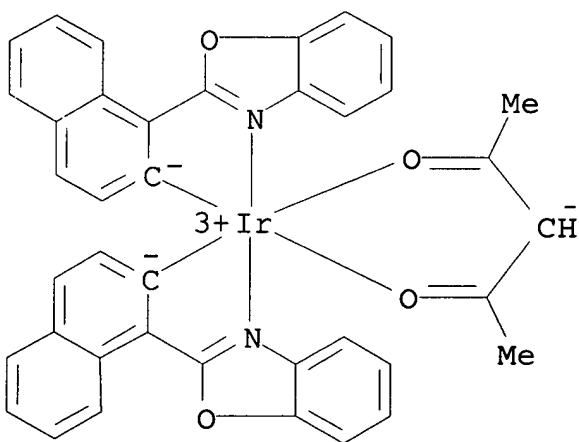
CN Iridium, bis[2-(1H-pyrazol-1-yl-.kappa.N2)phenyl-.kappa.C](2-pyridinecarboxylato-.kappa.N1,.kappa.O2)-, (OC-6-42)-(9CI) (CA INDEX NAME)





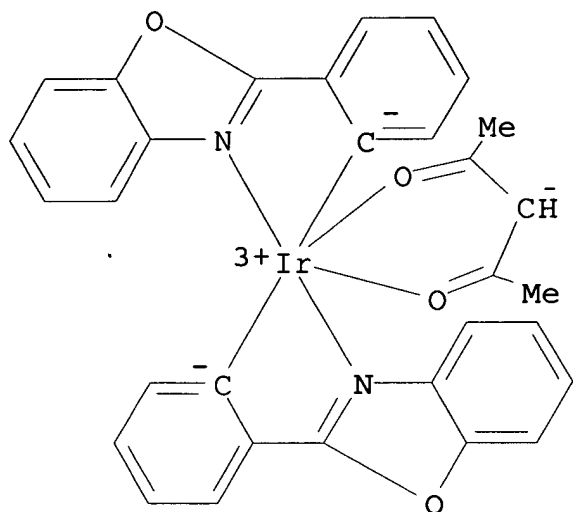
RN 343978-92-7 HCA

CN Iridium, bis[1-(2-benzoxazolyl-.kappa.N3)-2-naphthalenyl-.kappa.C] (2,4-pentanedionato-.kappa.O,.kappa.O')-, (OC-6-33)- (9CI)  
(CA INDEX NAME)



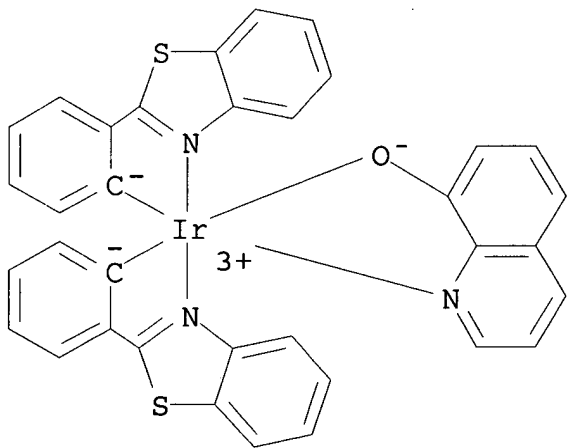
RN 343978-94-9 HCA

CN Iridium, bis[2-(2-benzoxazolyl-.kappa.N3)phenyl-.kappa.C] (2,4-pentanedionato-.kappa.O,.kappa.O')-, (OC-6-33)- (9CI) (CA INDEX NAME)



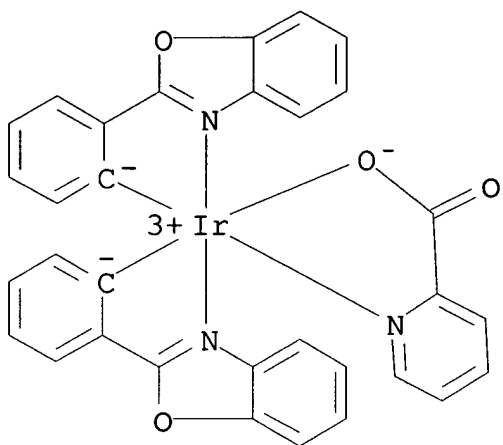
RN 343978-96-1 HCA

CN Iridium, bis[2-(2-benzothiazolyl-.kappa.N3)phenyl-.kappa.C] (8-quinolinolato-.kappa.N1,.kappa.O8)-, (OC-6-42)- (9CI) (CA INDEX NAME)



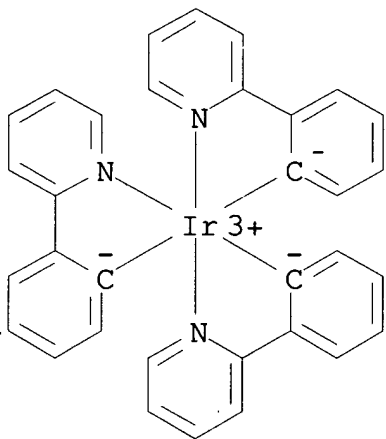
RN 343978-99-4 HCA

CN Iridium, bis[2-(2-benzoxazolyl-.kappa.N3)phenyl-.kappa.C] (2-pyridinecarboxylato-.kappa.N1,.kappa.O2)-, (OC-6-42)- (9CI) (CA INDEX NAME)



RN 344426-19-3 HCA

CN Iridium, tris[2-(2-pyridinyl-κN)phenyl-κC]-, (OC-6-21)-  
(9CI) (CA INDEX NAME)



IT 15635-87-7, Iridium trisacetylacetonate 116563-45-2

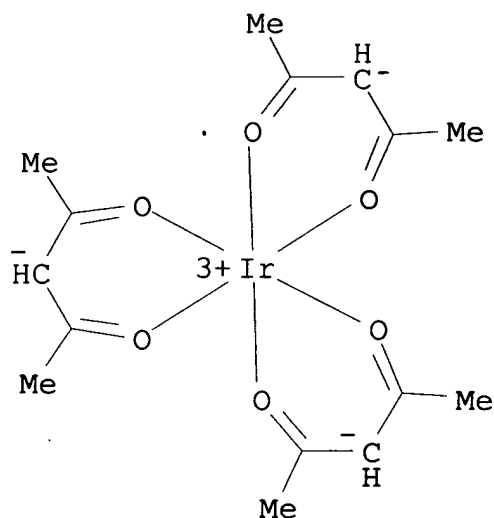
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343978-71-2 343978-72-3 343978-73-4

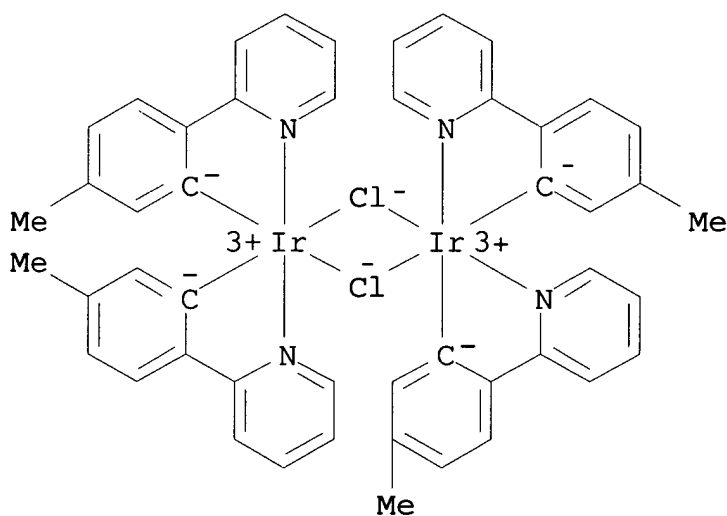
(phosphorescent cyclometallated complex dopants for org.  
light-emitting devices and their prepn.)

RN 15635-87-7 HCA

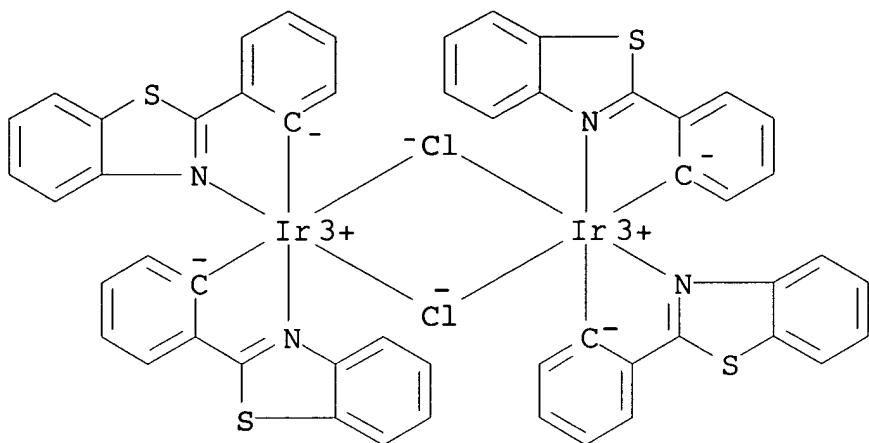
CN Iridium, tris(2,4-pentanedionato-κO,κO')-, (OC-6-11)-  
(9CI) (CA INDEX NAME)



RN 116563-45-2 HCA  
 CN Iridium, di-.mu.-chlorotetrakis[5-methyl-2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]di-, stereoisomer (9CI) (CA INDEX NAME)

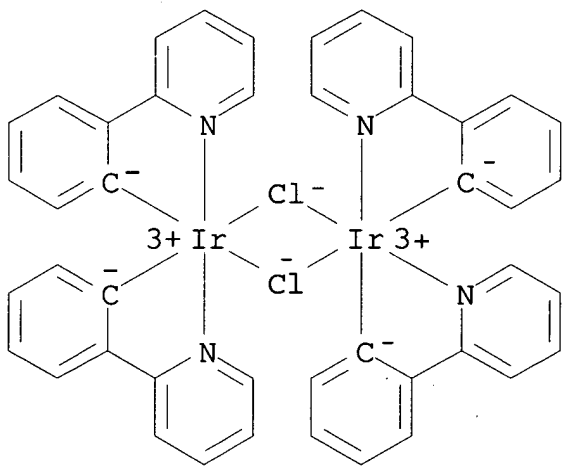


RN 337526-80-4 HCA  
 CN Iridium, tetrakis[2-(2-benzothiazolyl-.kappa.N3)phenyl-.kappa.C]di-.mu.-chlorodi-, stereoisomer (9CI) (CA INDEX NAME)



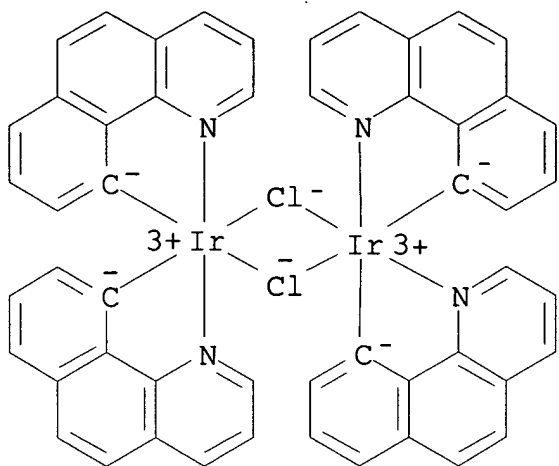
RN 338387-34-1 HCA

CN Iridium, di-.mu.-chlorotetrakis[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]di-, stereoisomer (9CI) (CA INDEX NAME)



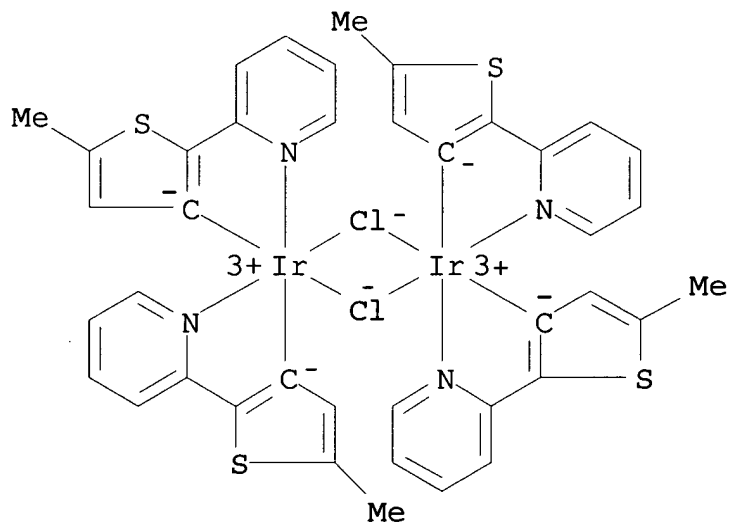
RN 338387-84-1 HCA

CN Iridium, tetrakis(benzo[h]quinolin-10-yl-.kappa.C,.kappa.N)di-.mu.-chlorodi-, stereoisomer (9CI) (CA INDEX NAME)



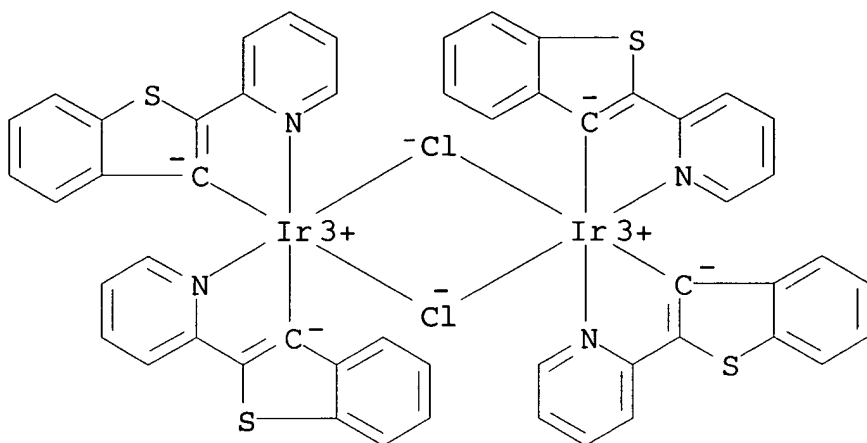
RN 343978-71-2 HCA

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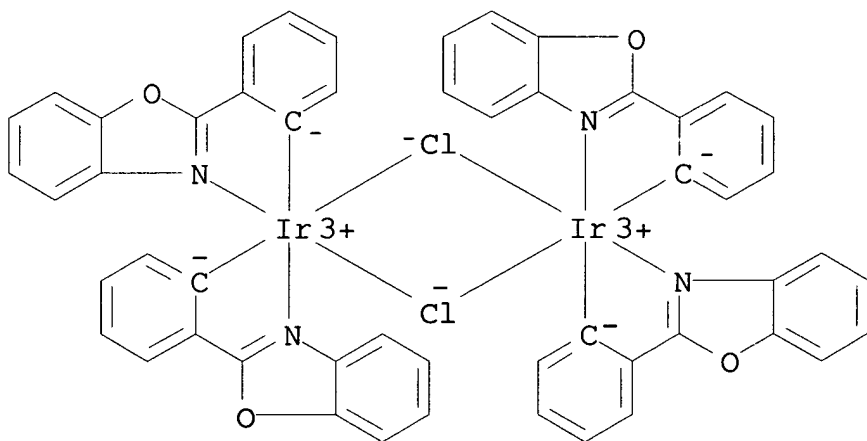
RN 343978-72-3 HCA

CN Iridium, di-.mu.-chlorotetrakis[2-(2-pyridinyl-.kappa.N)benzo[b]thien-3-yl-.kappa.C]di- (9CI) (CA INDEX NAME)



RN 343978-73-4 HCA

CN Iridium, tetrakis[2-(2-benzoxazolyl-.kappa.N3)phenyl-.kappa.C]di-.mu.-chlorodi- (9CI) (CA INDEX NAME)



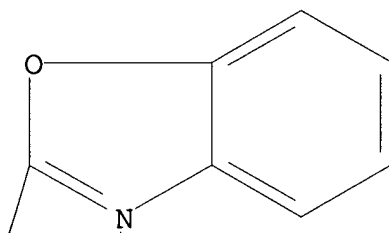
IT 343978-90-5P

(phosphorescent cyclometallated complex dopants for org.  
light-emitting devices and their prepn.)

RN 343978-90-5 HCA

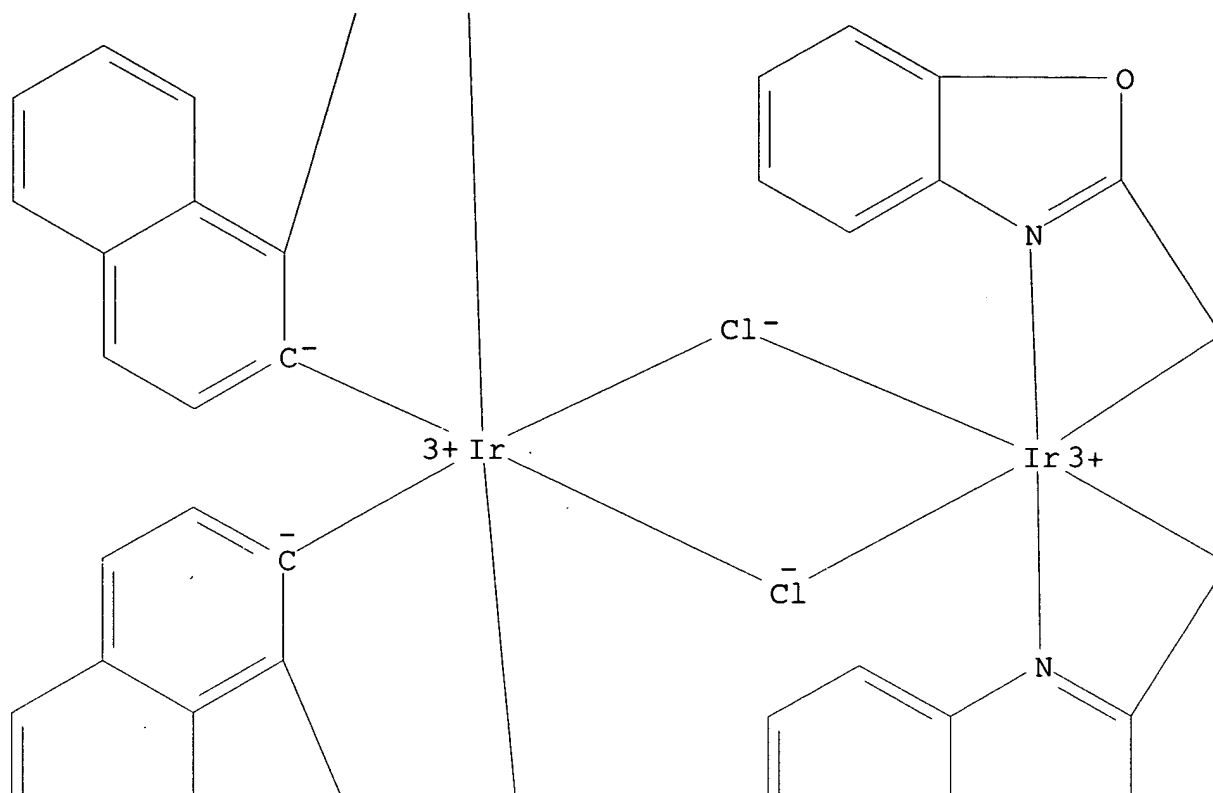
CN Iridium, tetrakis[1-(2-benzoxazolyl-.kappa.N3)-2-naphthalenyl-.kappa.C]di-.mu.-chlorodi- (9CI) (CA INDEX NAME)

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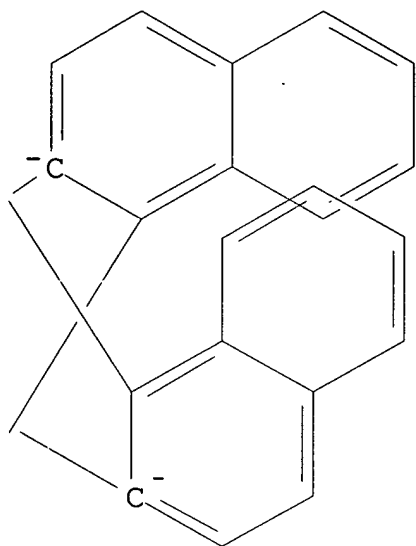




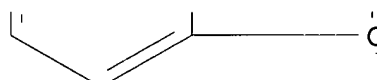
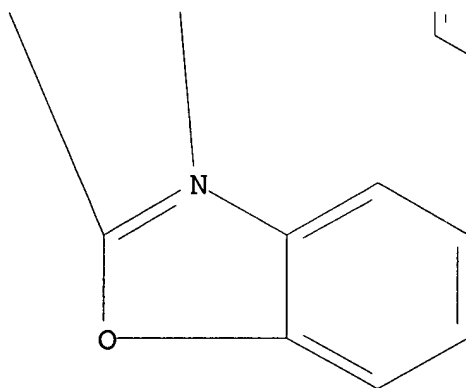
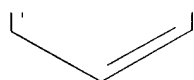
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IC ICM H05B033-14  
 ICS C07D213-02; C07D215-02; C07D231-12; C07D263-57; C07D277-66;  
 C07D333-50; C07D409-04; C07D417-04  
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related  
 Properties)  
 Section cross-reference(s): 29, 74, 76, 78  
 ST phosphorescent cyclometallated complex dopant org light  
 emitting device; iridium complex dopant

- org light emitting device; osmium complex dopant org light emitting device; platinum complex dopant org light emitting device
- IT Phosphors  
(electroluminescent; phosphorescent cyclometallated complex dopants for org. light-emitting devices and their prepn.)
- IT Electroluminescent devices  
(org.; phosphorescent cyclometallated complex dopants for org. light-emitting devices and their prepn.)
- IT Fluorescent substances  
Phosphorescent substances  
(phosphorescent cyclometallated complex dopants for org. light-emitting devices and their prepn.)
- IT 2085-33-8, Tris(8-hydroxyquinolinato)aluminum 4733-39-5, Bathocuproine 7440-04-2D, Osmium, compds. with org. ligands, uses 7440-06-4D, Platinum, compds. with org. ligands, uses 37271-44-6 50926-11-9, Indium tin oxide 57102-62-2D, derivs. 58328-31-7 58328-31-7D, derivs. 212385-75-6D, derivs. 344406-74-2D, derivs.  
(phosphorescent cyclometallated complex dopants for org. light-emitting devices and their prepn.)
- IT 57175-14-1P 337526-85-9P 337526-86-0P  
337526-87-1P 337526-88-2P 337526-89-3P  
337526-91-7P 337526-98-4P 343978-74-5P  
343978-75-6P 343978-76-7P 343978-77-8P  
343978-78-9P 343978-79-0P 343978-82-5P  
343978-86-9P 343978-88-1P 343978-92-7P  
343978-94-9P 343978-96-1P 343978-99-4P  
344426-19-3P  
(phosphorescent cyclometallated complex dopants for org. light-emitting devices and their prepn.)
- IT 86-55-5, 1-Naphthoic acid 95-55-6, 2-Aminophenol 98-98-6, Picolinic acid 123-54-6, Acetylacetone, reactions 148-24-3, 8-Hydroxyquinoline, reactions 230-27-3, 7,8-Benzoquinoline 1126-00-7, 1-Phenylpyrazole 1522-22-1, Hexafluoroacetylacetone 3117-65-5 4467-06-5, 2-(p-Tolyl)pyridine 10025-83-9, Iridium trichloride 15635-87-7, Iridium trisacetylacetonate 53698-49-0, 3-Methoxy-2-phenylpyridine 70546-18-8  
116563-45-2 337526-80-4 338387-34-1  
338387-84-1 343978-71-2 343978-72-3  
343978-73-4  
(phosphorescent cyclometallated complex dopants for org. light-emitting devices and their prepn.)
- IT 3164-18-9P, 2-(1-Naphthyl)benzoxazole 343978-90-5P  
(phosphorescent cyclometallated complex dopants for org. light-emitting devices and their prepn.)